Y 4. Ed 8/1:99-70

OSHA OVERSIGHT—WORKER PROTECTION AT SUPERFUND SITES

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HEARING

BEFORE THE

SUBCOMMITTEE ON HEALTH AND SAFETY

OF THE

COMMITTEE ON EDUCATION AND LABOR
HOUSE OF REPRESENTATIVES

NINETY-NINTH CONGRESS

FIRST SESSION

HEARING HELD IN WASHINGTON, DC, MAY 22, 1985

Serial No. 99-70

Printed for the use of the Committee on Education and Labor

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OSHA OVERSIGHT—WORKER PROTECTION AT SUPERFUND SITES

WEDNESDAY, MAY 22, 1985

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON HEALTH AND SAFETY,
COMMITTEE ON EDUCATION AND LABOR,
Washington, DC.

The subcommittee met, pursuant to call, at 9:30 a.m., in room 2257, Rayburn House Office Building, Hon. Joseph M. Gaydos (chairman of the subcommittee) presiding.

Member present: Representative Gaydos.

Staff present: Sy Holzman, deputy staff director; Lee Bassford, staff assistant, Subcommittee on Health and Safety; and Peter Morgret, minority legislative associate, Committee on Education and Labor.

Mr. GAYDOS. The committee will be in order.

I think at this time that it is an understatement to say that this Congress is very concerned about the progress being made in cleaning up toxic waste sites under the so-called Superfund law.

For the past several years, we have had a lot of talk and review, but obviously very little action.

I am not necessarily being critical of the slow movement in the clean-up efforts, because I can understand the enormity of the problem. I do recognize that in many cases, we don't even know what the waste materials are, what kind of reaction we can expect, and whether a new site for the wastes will be any safer for the environment than the old site.

But, as we in Congress prepare to reauthorize the law, perhaps it is time to look at some areas where there seems to be some reluctance for action.

One of these concerns is for those workers who will be cleaning up those toxic waste sites or who will be called upon in cases of emergencies to protect surrounding communities from any danger.

For some unknown reason, there has been a laxness about developing standards for training those people and standards for personal protective equipment and clothing.

The argument, that because there are too many different kinds of wastes and so many unknown ones it is difficult to develop single standards, is quite questionable.

If the concern is great, I see nothing wrong with erring on the side of safety by developing a standard for protection that would be suitable for the worst possible case. Corrective action could always follow.

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That is why we are here today, to focus on the need for protective standards for those who work in toxic waste sites and the importance of training these same people.

I might cite a personal example in my home locality where a site was being cleaned, being attended to, and on the front page of the local newspaper, there appeared a picture and it showed the worker working in usual denim, no protective devices, and an EPA worker right next to him with all his paraphernalia on.

He had a head cover, he had all types of special equipment. And one was continuing to work, the other was cleaning up the area. So the contradiction was obvious on its face, and that is a good, practical example of what we are trying to do here.

Without objection, at this time, I would like to make part of the record the statement of a friend of this committee, one who has been before the committee, Mr. Robert A. Georgine, president, Building and Construction Trades Department, AFL-CIO, dated May 22, 1985.

Without objection, so ordered.

[The prepared statement of Robert A. Georgine follows:]

PREPARED STATEMENT OF ROBERT A. GEORGINE, PRESIDENT, BUILDING AND CONSTRUCTION TRADES DEPARTMENT, AFL-CIO

On behalf of the Building and Construction Trades Department of the AFL-CIO, its 15 affiliated international unions, and the 4 million members of affiliated building trades unions, I want to express my deep concern for the construction workers of this country who are not being properly protected by OSHA at hazardous waste sites. Many of the construction trades are involved in their normal types of construction functions at these sites; building trades employees, for example, must prepare the sites, lay pipe and conduit, pour concrete, install lighting, and operate the equipment used in removing the waste materials.

Clearly, construction workers have a right to the full protection of the Occupational Safety and Health Act of 1970 and the Construction Safety Act of 1969 on hazardous waste sites no less than at other work places. Moreover, OSHA's standards and regulations applicable to construction work and the construction industry, contained in Parts 1926 and 1910 of Title 29, C.F.R. must be enforced vigorously on these sites. These include requirements for the maintaining by employers of safety and health programs (1926.20(b)(1)), the designation by employers of "competent persons" to inspect the sites, materials, and equipment (1926.20(b)(2), 32(f)), instruction by employers of each employee in the recognition and avoidance of unsafe conditions and in the regulations applicable to their work environments so as to control or eliminate hazards or other exposures to illness or injury (1926.21(b)(2)), instruction by employers of employees required to handle, or use poisons, caustics, and other harmful substances, and communication by employers to employees of the potential hazards, personal hygiene, and personal protective measures required (1926.21(b)(3)), and instruction by employers of employees required to handle or use flammable liquids, gases, or toxic materials in the safe handling and use of these materials and communication to them of the specific requirements contained in other applicable subparts of Subpart C as well as Subparts D and F (1926.21(b)(3)).

We urge OSHA to vigorously enforce these and other standards and regulations so as to protect the lives and health of construction workers required to work on hazardous waste sites.

Mr. GAYDOS. At this time, the Chair calls a panel consisting of Richard Duffy, director of occupational safety and health, International Association of Firefighters; accompanied by James Ellenberger, department of occupational safety, health, and Social Security, American Federation of Labor and Congress of Industrial Organizations.

Mr. Duffy? Without objection, your prepared statements—separate?

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Mr. DUFFY. Separate.

Mr. GAYDOS. All right. Your two separate statements will be made part of the record. Without objection, so ordered. And you may proceed, and if you wish to sum your statement, fine, cut it down, encapsulize it, do what you want.

STATEMENT OF RICHARD DUFFY, DIRECTOR OF OCCUPATIONAL SAFETY AND HEALTH, INTERNATIONAL ASSOCIATION OF FIREFIGHTERS; JAMES ELLENBERGER, DEPARTMENT OF OCCUPATIONAL SAFETY, HEALTH AND SOCIAL SECURITY, AMERICAN FEDERATION OF LABOR AND CONGRESS OF INDUSTRIAL ORGANIZATIONS; AND JOHN J. BROWN, LEGISLATIVE DIRECTOR, INTERNATIONAL UNION OF OPERATING ENGINEERS, AFL-CIO

Mr. ELLENBERGER. Thank you, Mr. Chairman. I am going to lead off. My name is James Ellenberger, and I am appearing today on behalf of Margaret Seminario, the associate director of the department of occupational safety, health, and Social Security of the AFL-CIO.

We appreciate, Mr. Chairman, the opportunity to testify before the subcommittee on the protection of workers engaged in hazardous waste cleanup, and response to hazardous substance emergencies.

Since the first major cleanup of a hazardous waste site at Love Canal, it has been clear to the AFL-CIO that the protection of workers involved with hazardous waste cleanup and emergency response posed an immediate and growing problem.

During the Love Canal cleanup, the AFL-CIO received reports from researchers and physicians monitoring the site that the workers had not been informed of the potential risks and were being afforded little or no protection from the hazardous chemicals.

No specific guidelines or standards existed in 1979 on protecting workers engaged in these operations. Given the estimated number of existing toxic waste dumps, and public pressure to clean up these sites, it was clear that hazardous waste cleanup would be a growing industry, with thousands of workers exposed to toxic chemicals which posed serious and life-threatening risks.

In 1979, the AFL-CIO contacted the heads of OSHA, NIOSH, and EPA and requested that the agencies take action to ensure the protection of workers engaged in the hazardous waste cleanup.

The three agencies were requested to jointly develop guidelines for the protection of workers involved with hazardous waste operations.

While it has always been our position that OSHA is the agency with primary responsibility for the protection of workers engaged in hazardous waste operations, we believe that EPA's experience in this area and NIOSH's field investigation and research skills would be of value in developing work protection guidelines.

In addition to the joint requests to develop guidelines, we asked each agency to take individual actions under its respective authority to improve protection for workers.

EPA was asked to provide a system for identifying and notifying OSHA of operations where cleanup was planned or underway, and

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to institute requirements in its contracts for cleanup for worker protection.

NIOSH was asked to conduct onsite health hazard investigations of major cleanup operations to determine the type and extent of exposures, effects of exposures, and adequacy of protective measures.

And OSHA was requested to develop regulations and an enforcement program to ensure the protection of workers involved with hazardous waste operations.

During 1980, the AFL-CIO met with the agencies to discuss the hazardous waste worker protection problem, and the agencies' response to our requests. But to make sure that action to protect workers would be forthcoming, we sought legislative action by the Congress to include provisions for worker protection in the major hazardous waste legislation that was under consideration at that time.

As a result of our efforts, by the end of 1980, Congress passed amendments to the Resource Conservation Recovery Act, RCRA, and the Comprehensive Environmental Response Compensation and Liability Act of 1980, Superfund, which included provisions for worker protections.

The RCRA amendments required EPA to provide information on hazardous waste operations to OSHA and NIOSH to assist these agencies in meeting their worker protection responsibilities.

The Superfund law mandated research on the health effects of hazardous waste, and directed OSHA, NIOSH, EPA, and the Department of Transportation to work together to develop recommendations for worker protections, and set a deadline of 2 years for the national contingency plan to be amended to provide for the protection of workers engaged in hazardous waste operations.

To respond to the requests of the AFL-CIO and the Congressional requirements of RCRA and Superfund laws, in December 1980, OSHA, EPA, NIOSH and the U.S. Coast Guard entered into a memorandum of understanding to work jointly to provide guidance for the protection of workers involved with hazardous waste operations.

The memorandum set forth three tasks: One, the development of a comprehensive guidance manual establishing procedures to protect workers involved in hazardous waste operations and emergency response; two, the establishment of mechanisms to transmit occupational safety and health information to workers and those responsible for their protection; and, three, the establishment of mechanisms for transmitting relevant field experiences concerning occupational safety and health practices to Federal agencies.

With the passage of the RCRA amendments and Superfund law, and the signing of the memorandum of understanding in 1980, the AFL-CIO believed that all the groundwork had been set to allow the agencies to move in a timely fashion to develop worker protection guidelines, and for OSHA to codify these measures into enforceable regulations.

However, 4 years after the enactment of the legislation and memorandum, virtually none of the requirements and goals set forth have been realized. The 4 years of "activity" has been characterized by the agencies squabbling over jurisdiction and fighting over the content of worker protection provisions.

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The technical guidance manual, promised by the memorandum, which was to serve as the basis for complying with the requirements of the Superfund law, has been prepared by NIOSH, but is still under review by the interagency working group.

The one item that was completed and issued by the working group, a worker bulletin on "hazardous waste sites and hazardous substance emergencies" provided review of potential hazards and possible control measures.

The bulletin is so general, and I might add so thin, that it offers virtually none of the specific and technical information that is necessary to establish worker protection measures.

All of the agencies who are signatories to the memorandum of understanding and designated by the Superfund law must share some of the blame for the failure to establish Government guidance and regulations for workers involved with hazardous waste operations.

In the view of the AFL-CIO, the Occupational Safety and Health Administration has been the least responsive. OSHA is the Federal agency with primary responsibility to issue and enforce regulations to protect workers in hazardous waste operations.

The memorandum of understanding and legislative amendments were means to coordinate Federal activity and to provide assistance to OSHA. But these measures were never intended to preempt or to give OSHA an excuse for not acting on this matter.

Under the Occupational Safety and Health Act, OSHA has had the full authority since 1971 to take actions to protect workers involved with hazardous waste operations. Yet the agency has done nothing to protect these workers. OSHA has no specific standards designed to protect workers engaged in hazardous waste operations, nor are the agency's existing standards adequate to ensure the protection of workers.

Neither environmental monitoring, medical surveillance or training of workers is required for workers in hazardous waste operations. OSHA has made no attempt, since 1980, to draft regulations. The agency has not even assigned any of its health standards staff to serve on the interagency working group drafting the guidance manual.

On the enforcement side, OSHA's record is just as dismal. The agency has not established any real enforcement program to inspect hazardous waste sites. Inspections are scheduled only in response to complaints or requests for assistance from other agencies.

The only program directive issued by OSHA on enforcement for hazardous waste activity focuses more on the relationship between OSHA and EPA than it does on the requirements for the protection of workers.

OSHA has taken the position that since EPA is the lead Superfund agency, OSHA will not schedule routine inspections at sites cleaned up under the Superfund, even though these represent the most dangerous sites.

OSHA has indicated it may inspect non-Superfund waste sites, but to our knowledge the agency has not yet set forth specific guidance to its compliance officers on how to apply existing general standards for respirators and personal protective equipment, and

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the OSHA act's general duty requirement to hazardous waste enforcement actions.

New OSHA worker protection standards, and a vigorous enforcement program are needed to protect workers engaged in hazardous waste operations and emergency response. OSHA's track record during the past 4 years indicates that the agency has abandoned all leadership in addressing this emerging safety and health problem.

In our view, it is unlikely that OSHA will do anything in this area unless specifically directed to do so by the Congress. The AFL-CIO recommends that legislation be developed and enacted which provides comprehensive protection for workers engaged in hazardous waste operations.

The legislation should direct OSHA to issue a comprehensive, permanent standard within a specified period of time; for example, 2 years; and outline the elements of a worker protection program that must be incorporated into the standard.

These program elements should include, one, a formal hazard analysis of the site and development of a site-specific plan for worker protection; two, mandatory minimum training and certification requirement for workers similar to mandatory training requirements in the Mine Safety and Health Act; three, appropriate engineering and work practice controls; four, specifications for personal protective equipment; five, medical monitoring; six, exposure monitoring; seven, right-to-know requirements; eight, decontamination procedures; and, nine, an emergency response program.

In order to assure the protection of workers during the time period in which the final regulations are being developed, Congressional action is also needed. Any legislative initiative should mandate that either the elements of EPA's program for the protection of EPA's own employees engaged in hazardous waste operations or the elements of the Draft NIOSH Occupational Safety and Health Guidance Manual for Superfund Activities be enforceable by OSHA under the OSHA act's general duty requirements.

OSHA has already indicated that it believes the agency can take enforcement actions in hazardous waste operations through its general duty clause. The legislative action recommended would merely codify this and provide guidelines that should be used as an interim standard pending the promulgation of a comprehensive regulation.

The AFL-CIO appreciates the interest of the subcommittee, Mr. Chairman, in the problems faced by the workers engaged in hazardous waste operations, and offers our assistance in developing legislation to protect these workers from serious safety and health hazards posed by toxic wastes.

Mr. Chairman, with your permission, I would like to submit for the record copies of correspondence from the AFL-CIO in November 1979 to the Director of NIOSH, to the Administrator of the EPA, and to the Assistant Secretary for OSHA, concerning the problems of worker protection at hazardous waste sites.

I would also like, Mr. Chairman, with your permission, to submit for the record the booklet that I mentioned in my testimony on hazardous waste sites and hazardous substance emergencies. You can see how thin it is; it is mostly pictures.

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And, finally, Mr. Chairman, I have two manuals, one from the National Institute for Occupational Safety and Health in Cincinnati entitled the Occupational Safety and Health Guidance Manual for Superfund Activities, which has recently come out and is currently being examined by the interagency working group; and the second, the EPA training manual on health and safety requirements for employees engaged in field activities.

You noted yourself, Mr. Chairman, that in your own district, at hazardous waste sites, EPA workers are apparently adequately protected and special steps are undertaken to ensure that those workers are not subjected to the hazards of these chemicals.

And yet, the workers that are sent out there to clean up these sites don't have similar protections because OSHA has failed to put in place a standard providing for that protection.

I thank you very much.

[The prepared statement of Margaret Seminario follows:]

PREPARED STATEMENT OF MARGARET SEMINARIO, ASSOCIATE DIRECTOR, DEPARTMENT OF OCCUPATIONAL SAFETY, HEALTH AND SOCIAL SECURITY, AFL-CIO

Mr. Chairman, the AFL-CIO appreciates the opportunity to testify before the subcommittee on the protection of workers engaged in hazardous waste clean-up and response to hazardous substances emergencies.

Since the first major clean-up of a hazardous waste site at Love Canal, it has been clear to the AFL-CIO that the protection of workers involved with hazardous waste clean-up and emergency response posed an immediate and growing problem. During the Love Canal clean-up the AFL-CIO received reports from researchers and physicians monitoring the site that the workers had not been informed of the potential risks and were being afforded little or no protection from the hazardous chemicals.

No specific guidelines or standards existed in 1979 on protecting workers engaged in these operations. Given the estimated numbers of existing toxic waste dumps and public pressure to clean-up these sites, it was clear that hazardous waste clean-up would be a growing industry with thousands of workers exposed to toxic chemicals which posed serious and life threatening risks.

In 1979, the AFL-CIO contacted the heads of OSHA, NIOSH and EPA and requested that the agencies take action to ensure the protection of workers engaged in hazardous waste clean-up. The three agencies were requested to jointly develop guidelines for the protection of workers involved with hazardous waste operations. While it has always been our position that OSHA is the agency with primary responsibility for the protection of workers engaged in hazardous waste operations, we believed that EPA's experience in this area and NIOSH's field investigation and research skills would be of value in developing worker protection guidelines.

In addition to the joint request to develop guidelines, we asked each agency to take individual actions under its respective authority to improve protections for workers. EPA was asked to provide a system for identifying and notifying OSHA of operations where clean-up was planned or underway, and to institute requirements in its contracts for clean-up for worker protection. NIOSH was asked to conduct on-site health hazard investigations of major clean-up operations to determine the type and extent of exposures, effects of exposures and adequacy of protective measures. And OSHA was requested to develop regulations and an enforcement program to ensure the protection of workers involved with hazardous waste operations.

During 1980 the AFL-CIO met with the agencies to discuss the hazardous waste worker protection problem and the agencies' response to our request. But to make sure that action to protect workers would be forthcoming, we sought legislative actions by the Congress to include provisions for worker protection in the major hazardous waste legislation that was under consideration at the time.

As a result of our efforts, by the end of 1980 the Congress passed amendments to the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (Superfund) which included provisions for worker protections. The RCRA amendments required EPA to provide information on hazardous waste operations to OSHA and NIOSH to assist these agencies in meeting their worker protection responsibilities. The Superfund law mandated research on the health effects of hazardous waste and directed

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OSHA, NIOSH, EPA and the Department of Transportation to work together to develop recommendations for worker protections and set a deadline of 2 years for the National Contingency Plan to be amended to provide for the protection of workers engaged in hazardous waste operations.

To respond to the requests of the AFL-CIO and the Congressional requirements of the RCRA and Superfund laws, in December 1980 OSHA, EPA, NIOSH and the U.S. Coast Guard (DOT) entered into a Memorandum of Understanding to work jointly to provide guidance for the protection of workers involved with hazardous waste operations. The memorandum set forth three tasks: (1) the development of a comprehensive guidance manual establishing procedures to protect workers involved in hazardous waste operations and emergency response; (2) the establishment of mechanisms to transmit occupational health and safety information to workers and those responsible for their protection; and (3) the establishment of mechanisms for transmitting relevant field experiences concerning occupational health and safety practices to Federal agencies.

With the passage of the RCRA amendments and Superfund law and the signing of the Memorandum of Understanding in 1980, the AFL-CIO believed that all the groundwork had been set to allow the agencies to move in a timely fashion to develop worker protection guidelines and for OSHA to codify these measure into enforceable regulations. However, four years after the enactment of the legislation and memorandum, virtually none of the requirements and goals set forth have been realized.

The four years of "activity" has been characterized by the agencies squabbling over jurisdiction and fighting over the content of worker protection provisions. The technical guidance manual promised by the memorandum which was to serve as the basis for complying with the requirements of the Superfund law has been prepared by NIOSH, but is still under review by the interagency working group. The one item that was completed and issued by the working group, a worker bulletin on "Hazardous Waste Sites and Hazardous Substance Emergencies" provided review of potential hazards and possible control measures. The bulletin is so general, however, that it offers virtually none of the specific and technical information that is necessary to establish adequate worker protection measures.

All of the agencies who are signatories to the Memorandum of Understanding and designated by the Superfund law must share some of the blame for the failure to establish government guidance and regulations for workers involved with hazardous waste operations. In the view of the AFL-CIO, however, the Occupational Safety and Health Administration has been the least responsive.

OSHA is the federal agency with primary responsibility to issue and enforce regulations to protect workers in hazardous waste operations. The Memorandum of Understanding and legislative amendments were means to coordinate federal activity and to provide assistance to OSHA, but these measures were never intended to preempt or to give OSHA an excuse for not acting on this matter.

Under the Occupational Safety and Health Act OSHA has had the full authority since 1971 to take actions to protect workers involved with hazardous waste operations. Yet the agency has done nothing to protect these workers. OSHA has no specific standards designed to protect workers engaged in hazardous waste operations, nor are the agency's existing standards adequate to ensure the protection of workers. Neither environmental monitoring, medical surveillance, or training of workers is required for workers in hazardous waste operations.

OSHA has made no attempt since 1980 to draft regulations; the agency has not even assigned any of its health standards staff to serve on the interagency working group drafting the guidance manual.

On the enforcement side, OSHA's record is just as dismal. The agency has not established any real enforcement program to inspect hazardous waste sites. Inspections are scheduled only in response to complaints or requests for assistance from other agencies.

The only program directive issued by OSHA on enforcement for hazardous waste activity focuses more on the relationship between OSHA and EPA that it does no requirements for the protection of workers. OSHA has taken the position that since EPA is the lead Superfund agency OSHA will not schedule routine inspections at sites cleaned up under the Superfund even though these represent the most dangerous sites. OSHA has indicated it may inspect non-Superfund waste sites, but to our knowledge the agency has not yet set forth specific guidance to its compliance officers on how to apply existing general standards for respirators and personal protective equipment, and the OSHAct's general duty requirement to hazardous waste enforcement actions.

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New OSHA worker protection standards and a vigorous enforcement program are needed to protect workers engaged in hazardous waste operations and emergency response. OSHA's track record during the past four years indicates that the agency has abandoned all leadership in addressing this emerging safety and health problem. In our view it is unlikely that OSHA will do anything in this area unless specifically directed to do so by the Congress.

The AFL-CIO recommends that legislation be developed and enacted which provides comprehensive protection for workers engaged in hazardous waste operations. The legislation should direct OSHA to issue a comprehensive permanent standard within a specified time period (i.e., 2 years) and outline the elements of a worker protection program that must be incorporated into the standard. These program elements should include: (1) a formal hazard analysis of the site and development of a site specific plan for worker protection; (2) mandatory minimum training and certification requirements for workers, similar to the mandatory training requirements of the Mine Safety and Health Act; (3) appropriate engineering and work practice controls; (4) specifications for personal protective equipment; (5) medical monitoring; (6) exposure monitoring; (7) right-to-know requirements; (8) decontamination procedures; and (9) an emergency response program.

In order to assure the protection of workers during the time period in which the final regulations are being developed, Congressional action is also needed. Any legislative initiative should mandate that either the elements of EPA's program for the protection of EPA's own employees engaged in hazardous waste operations, or the elements of the Draft NIOSH Occupational Safety and Health Guidance Manual for Superfund Activities be enforceable by OSHA under the OSHAct's general duty requirements. OSHA has already indicated that it believes the agency can take enforcement actions in hazardous waste operations through its general duty clause; the legislative action recommended would merely codify this and provide guidelines that should be used as an interim standard pending the promulgation of a comprehensive regulation.

The AFL-CIO appreciates the interest of the subcommittee in the problems faced by workers engaged in hazardous waste operations, and offers our assistance in developing legislation to protect these workers from serious safety and health hazards posed by toxic wastes.

Mr. GAYDOS. Without objection, the first two items will be made part of the record, the last two will be made available. You can't include those in the record. Is there any objection to that?

Mr. ELLENBERGER. That is fine, Mr. Chairman.

Mr. GAYDOS. Without objection, so ordered.

[The information follows:]

NOVEMBER 26, 1979.

DR. ANTHONY ROBBINS,
Director, National Institute for Occupational Safety and Health, Parklawn Building, 56 Fishers Lane, Rockville, MD

DEAR TONY: During recent weeks, it has come to my attention that workers engaged in cleanup of Love Canal and other chemical dump sites are in immediate and grave danger from exposure to toxic waste chemicals. According to physicians and researchers monitoring the Love Canal situation, workers involved in cleanup operations have not been informed of potential risks and are being afforded little or no protection from exposure to toxic chemicals.

Given the extent of the waste chemical problem, we can expect many thousands of workers to be engaged in cleanup operations over the next decade. As the representative of many workers involved in cleanup, including members of the Operating Engineers and Laborers International union, the AFL-CIO is deeply concerned that the poisoning and pollution of community lands and waters not be exceeded to thousands of workers whose jobs will involve the cleanup and disposal of environmental wastes.

At this time, the AFL-CIO asks NIOSH to take the following actions to protect workers engaged in chemical waste cleanup and disposal:

(1) A health hazard evaluation of major cleanup operations in progress to determine the type and extent of exposures, effects of exposures and adequacy of protective measures.

(2) In coordination with OSHA and EPA, develop a hazard alert which sets forth detailed procedures for protection in cleanup operations—i.e., appropriate protective clothing, respiratory protection, hygiene, medical surveillance and training—in addition to characterization of exposure potential and risks.

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I am aware that NIOSH is currently involved in an assessment of occupational exposure to waste chemicals in several plants located near or on chemical dumps in upstate New York. I am interested in determining more fully the present and planned activities of NIOSH on this problem and in discussing the expansion of these efforts to include the actions outlined above.

In addition to yourself, I have contacted Douglas Costle and Dr. Lula Bingham requesting action by EPA and OSHA on this matter. I would like to convene a meeting with the principals of the three agencies within the next few weeks to discuss the problems, actions outlined above, and plan a coordinated program for protecting workers engaged in cleanup operations.

Attached is a copy of that section of our recent Convention's policy resolution on the environment and dealing with hazardous and toxic wastes disposal.

I will be contacting your office within the next few days to set up a time for the meeting.

Thank you for your time and attention in this matter.

Sincerely,

GEORGE H.R. TAYLOR,
Director, Department of Occupational Safety and Health.

NOVEMBER 26, 1979.

Mr. DOUGLAS M. COSTLE,
Administrator, Environmental Protection Agency, 401 M Street, SW, Washington, DC.

DEAR DOUG: During recent weeks, it has come to my attention that workers engaged in cleanup of Love Canal and other chemical dump sites are in immediate and grave danger from exposure to toxic waste chemicals. According to physicians and researchers monitoring the Love Canal situation, workers involved in cleanup operations have not been informed of potential risks and are being afforded little or no protection from exposure to toxic chemicals.

Given the extent of the waste chemical problem, we can expect many thousands of workers to be engaged in cleanup operations over the next decade. As the representative of many workers involved in cleanup, including members of the Operating Engineers and Laborers International Union, the AFL-CIO is deeply concerned that the poisoning and pollution of community lands and waters not be extended to thousands of workers whose jobs will involve the cleanup and disposal of environmental wastes.

At this time, the AFL-CIO asks you to take the following actions under the Resource Conservation and Recovery Act to protect workers engaged in chemical cleanup and disposal:

(1) Identify all dump sites where cleanup is currently under way or planned and transmit such information to OSHA and NIOSH.

(2) In coordination with OSHA and NIOSH, develop a hazard alert which sets forth detailed procedures for protection in cleanup operations—i.e., appropriate protective clothing, respiratory protection, hygiene, medical surveillance and training—in addition to characterization of exposure potential and risks.

(3) Establish a contingency program for the awarding of federal monies for cleanup of chemical waste which requires a demonstration that proper and adequate protective measures will be afforded workers engaged in cleanup.

In addition to yourself, I have contacted Dr. Eula Bingham and Dr. Anthony Robbins requesting action by OSHA and NIOSH in this matter. I would like to convene a meeting with the principals of the three agencies within the next few weeks to discuss the problems, actions outlined above and plan a coordinated program for protecting workers engaged in cleanup operations.

I will be contacting your office within the next few days to set up a time for the meeting.

Attached is a copy of that section of our recent Convention's policy resolution on the environment and dealing with hazardous and toxic wastes disposal.

Thank you for your time and attention in this matter.

Sincerely,

GEORGE H.R. TAYLOR,
Director, Department of Occupational Safety and Health.

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NOVEMBER 26, 1979.

Dr. EULA BINGHAM,
Assistant Secretary, OSHA—Department of Labor, Rm. S2315, 200 Constitution Avenue NW., Washington, DC.

DEAR EULA: During recent weeks, it has come to my attention that workers engaged in cleanup of Love Canal and other chemical dump sites are in immediate and grave danger from exposure to toxic waste chemicals. According to physicians and researchers monitoring the Love Canal situation, workers involved in cleanup operations have not been informed of potential risks and are being afforded little or no protection from exposure to toxic chemicals.

Given the extent of the waste chemical problem, we can expect many thousands of workers to be engaged in cleanup operations over the next decade. As the representative of many workers involved in cleanup, including members of the Operating Engineers and Laborers International Union, the AFL-CIO is deeply concerned that the poisoning and pollution of community lands and waters not be extended to thousands of workers whose jobs will involve the cleanup and disposal of environmental wastes.

At this time, the AFL-CIO asks you to take the following actions to protect workers engaged in chemical waste cleanup and disposal:

(1) Immediately identify all chemical dump sites within the jurisdiction of each OSHA Regional and Area office. In particular, dumps where cleanup is underway or planned should be targeted.

(2) Immediately inspect/evaluate all major cleanup operations currently underway to determine the type and extent of exposures, the effects of exposure and adequacy of protective measures.

(3) Develop a comprehensive regulatory program to protect workers engaged in cleanup operations. In conjunction with NIOSH and EPA, OSHA should develop a hazard alert which outlines exposure potential, risk from cleanup and details specific protective measures, i.e., identification of toxic chemicals, protective clothing respiratory protection, hygiene, medical surveillance and training. Enforcement of the measures should be implemented through a program directive under Section 5(a) or the appropriate health standard.

In addition to yourself, Douglas Costle and Dr. Anthony Robbins have been contacted with requests for action on this matter. I should like to convene a meeting of the principals of the three agencies within the next few weeks to discuss the problems, actions outlined above and plan a coordinated program for protecting workers engaged in cleanup.

Attached is a copy of that section of our recent convention's policy resolution on the environment and dealing with hazardous and toxic wastes disposal.

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Director, Department of Occupational Safety and Health.

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NIOSH Worker Bulletin

HAZARDOUS WASTE SITES AND HAZARDOUS SUBSTANCE EMERGENCIES

U.S. Department of Health and Human Services
Public Health Service
Centers for Disease Control
National Institute for Occupational Safety and Health

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DHHS (NIOSH) Publication No. 83-100

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HAZARDOUS WASTE SITES AND HAZARDOUS SUBSTANCE EMERGENCIES

WORKER BULLETIN

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NIOSH Purchase Order 82-12

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This bulletin is a joint project of four agencies, completed in accordance with a Memorandum of Understanding and funded under Interagency Agreement AD-75-F2A091 between EPA and DHHS.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Institute for Occupational Safety and Health
Division of Standards Development and Technology Transfer

Cincinnati, Ohio 45226
December 1982

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PREFACE

This bulletin was developed in accordance with a Memorandum of Understanding between the National Institute for Occupational Safety and Health (NIOSH), the Occupational Safety and Health Administration (OSHA), the U.S. Coast Guard (USCG), and the U.S. Environmental Protection Agency (EPA). These four agencies recognized the urgent need for disseminating additional occupational safety and health information to hazardous waste workers during the present national effort to clean up abandoned hazardous waste sites and deal with hazardous substance emergencies pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA-Superfund).

Thousands of workers will be involved in the task of correcting the existing environmental problems and potential emergencies resulting from many years of inadequate storage and disposal of the nation's hazardous waste. These workers must be properly protected.

All workers have a right to a safe and healthful workplace. Each may obtain a copy of occupational safety and health standards, regulations, and requirements for their work. Workers may also request a workplace evaluation by NIOSH to see if safety and health hazards exist, and file safety and health complaints with OSHA or other agencies. Workers have the right to remain anonymous in these requests. Workers may not be fired or be discriminated against because they have made complaints about unsafe or unhealthful working conditions to their employers, their unions, OSHA, or any other safety or health agency; have been involved in any proceedings under the Occupational Safety and Health Act (OSH Act); or have exercised any other right under the OSH Act such as refusing to work when confronted with a hazard that is imminently dangerous. If workers have been fired or discriminated against for these reasons, in order to obtain help they must file discrimination complaints with OSHA within 30 days of the firing or other discrimination. (See the telephone directory under the "United States Government, Department of Labor, Occupational Safety and Health Administration" for OSHA listings.)

This bulletin provides preliminary guidance to protect the health of hazardous waste workers. As new technology is developed, and additional experience is gained in disposing of hazardous waste, follow-up publications will be developed.

DISCLAIMER

Mention of company names or products does not constitute endorsement by the National Institute for Occupational Safety and Health or other participating agencies.

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INTRODUCTION

You are involved in the handling, storage, and disposal of some of the millions of tons of hazardous wastes produced each year in the United States. You may also be involved in responding to hazardous substance emergencies. In the past, a large quantity of hazardous waste was stored or disposed of in an unsafe condition at unsafe locations. Many of these dump sites have been abandoned and present a potential danger to human health and/or the environment. Removal or treatment of the improperly stored or discarded waste with subsequent disposal at an approved site will help correct past problems.

Work situations such as these require that you enter potentially hazardous environments. It is therefore important that you be adequately trained to recognize and deal with hazardous situations which may arise. Often you may be required to wear special clothing or equipment to protect your personal safety and health. Many hazardous chemicals cannot readily be detected with your eyes or nose alone. Special equipment must be used to determine the presence of these substances. This bulletin will familiarize you with the potential hazards you may face and will address precautions which must be taken in order to work as safely as possible. It is not intended to be your only source of information or to take the place of hazardous waste safety training.

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THE HAZARDS YOU FACE

Some of the hazards you may encounter at the work-site include:

- —Toxic (poisonous) substances
- —Explosive materials
- —Corrosive materials
- —Heat or cold stress
- —Air in the work area, such as in a tank or ditch, that is deficient in oxygen
- —Cancer-causing agents
- —Flammable materials
- —Excessive noise
- —Biologically active materials such as bacteria and viruses
- —Radioactive materials
- —Accidents resulting in physical harm

The amount of risk varies with the type and degree of exposure to these hazards. Exposure can result in any of the following:

- —Asphyxiation
- —Cancer
- —Damage to liver, kidneys, nerve cells, etc.
- —Skin diseases
- —Eye injuries
- —Poisoning
- —Infertility
- —Harmful effects to the unborn child
- —Loss of limbs
- —Loss of hearing

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WAYS YOU CAN BE EXPOSED TO WASTE HAZARDS

The routes of exposure include:

Inhalation — Breathing contaminated air.

Skin — Contact with harmful liquids, gases, solids, or contaminated clothing, equipment, medications, cosmetics, etc.

Ingestion — Eating or drinking of contaminated food, water, or medications. (REMEMBER: FOOD AND CIGARETTES CAN BE CONTAMINATED BY YOUR GLOVES, EQUIPMENT, OR UNWASHED HANDS.)

Exposure can result from any of the following:

—Lack of qualified personnel and/or the proper equipment to evaluate hazards and define the levels of protection needed.

—Improper selection of or insufficient training in the maintenance and use of personal protective equipment (such as respirators, special clothing, or safety glasses) before entering a work site.

—Failure to follow instructions or wear prescribed protective equipment.

—Failure or lack of engineering controls such as shields or drum handling equipment.

—Unexpected hazards at the work site.

—Insufficient time to put on protective equipment in an emergency.

—Inadequate emergency procedures and/or protective equipment.

—Walking unnecessarily through puddles or into vapor mists, etc.

—Failure to decontaminate immediately after splashes or spills occur.

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HOW TO PROTECT YOURSELF AGAINST THESE HAZARDS

Find out as much as you can about the kinds of chemicals and other potential hazards which may be present at the work site. Know what they are and what they can do to you. For example, ask your supervisor:

- What protective clothing and equipment are required for the hazardous substances you may encounter at the work site.
- What potential explosive and/or flammable conditions may be present.
- What, if any, confined spaces will you have to enter. (The air in these spaces MUST be checked for unsafe concentrations of airborne contaminants and for sufficient levels of oxygen.)
- What emergency equipment is available, where it is located, and how to use it. (This equipment must be checked often and kept in good working condition.)
- What is the availability of standby personnel.
- What are the standard operating procedures (SOPs) for evacuation and rescue in the event of an emergency.
- If conditions or situations are likely to change during the work period, how will you be notified.
- What is the work/rest cycle for each task.
- What are the prescribed decontamination procedures.
- Will the buddy system be used and who will be your buddy.

Stay out of contaminated areas if you are not properly trained, equipped, or authorized to enter. Don't take chances with life-threatening materials or situations.

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WORK SAFELY

Special equipment, special training, and special precautions are required in hazardous waste work. Follow your employer's standard operating procedures (SOPs) and your supervisor's instructions. Use your own senses of sight, hearing, smell, and touch—and stay alert. Many things you encounter may be entirely new or different to you and may require procedures that you have not used on other jobs.

Remember that common sense is based upon experience and training. Different problems may be encountered every day. If you don't understand and haven't been trained, ask for instructions.

Some things to remain aware of at the work site include:

— Any weather changes. For example, when it gets hot or the air is calm, chemical concentrations in the air can increase. This may require additional protection.
— Wind direction. For example, avoid dust and vapors by working upwind if possible.
— Odors that may indicate the presence of chemicals.
— The location of someone who can help if an emergency arises.
— Your employer's SOPs, which you should follow for any necessary decontamination procedures, including cleaning and storing or disposing of contaminated equipment and clothing. You can expose your family or friends to toxic substances by carrying contaminants on your clothing, shoes, tools, etc.
— Washing your hands BEFORE eating, drinking, smoking, or using the restroom.
— Showering and changing into clean clothes and depositing your work clothes in the proper area before leaving the work site.
— Keeping food, drinks, smoking materials, and personal care items in clean areas only.
— Heavy equipment operating near you.
— The proper handling of drums and other equipment so as to prevent personal injury.
— The need for proper personal protection equipment and its limitations.
— Emergency procedures and the evacuation signal.
— Where and how to exit from every area.

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PERSONAL PROTECTIVE EQUIPMENT

Different types of protective equipment will be required depending on the substances to be handled, the existing conditions, and the particular situation. Personal protective equipment includes a variety of special suits, hard hats, goggles, face shields, aprons, boots, gloves, and respirators. Each is designed to protect you from certain hazards. It is important for you to know the ADVANTAGES AND LIMITATIONS of all the equipment you may use or need. Use this equipment as instructed and follow all written procedures.

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PROTECTIVE CLOTHING

Protective clothing is used to shield you from fire, toxic chemicals, and/or corrosive materials. Such clothing includes splash suits, fully encapsulating suits, chemical-resistant clothing, and fire-resistant clothing. Some clothing is designed to allow you to work in hazardous environments by completely enclosing the body, while other clothing is designed only to protect specific portions of the body.

Fire-resistant clothing is not generally designed to provide a high level of protection against chemical exposure. Therefore, additional precautions should be taken where exposure to both chemicals and fire may occur.

Proper clothing to insulate against cold should be worn under protective clothing in winter. Proper rest and cool-down periods, with replacement of body fluids and salts, should be provided when protective clothing is worn during summer or in hot conditions.

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SPLASH SUITS AND ASSOCIATED CLOTHING

Splash suits and associated splash protection clothing are worn to keep hazardous materials from touching the body. Such clothing may include: gloves, boots, aprons, goggles, jackets, leggings, hoods, and coveralls made of chemically resistant materials, which can be composed of anything from treated paper to specially formulated rubber. Different combinations of this type of protective clothing can provide the level of protection necessary for each situation. Follow instructions of your supervisor regarding splash protection. Know where the emergency eye wash and showers are located and how to use them. Learn the procedures to properly decontaminate your reusable protective clothing. IMMEDIATELY GET DECONTAMINATED IF HAZARDOUS MATERIALS SPILL OR SPLASH ON YOU.

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FULLY ENCAPSULATING SUITS

Fully encapsulating suits are usually worn to protect the body against exposure to airborne concentrations of highly toxic or corrosive chemicals. (Atmosphere-supplying respirators MUST be worn with these suits.) "Fully encapsulating" does not necessarily mean "fully protective." Different suits will be required for different situations because no suit is resistant to all chemicals.

Due to the specialized nature of this equipment, its use requires special training and experience, including plans for rescue and escape from the suits themselves, should this become necessary.

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RESPIRATORS

Respirators protect you from breathing hazardous airborne contaminants. They must be properly selected, fitted, and maintained. Most important, you must know their proper uses and limitations. If the contaminants in your work environment require you to wear a respirator, WEAR IT. The alternatives are not worth the risk. Exposure to high concentrations of a toxic substance, even for a short time, can cause serious injury or death. Exposure to low concentrations of certain toxic substances can cause permanent damage to the lungs, liver, kidneys, or other organs. Work environments can be fatal if the oxygen content of the air is too low.

Different respiratory protection is required for different situations. Consequently, a number of different types of respirators are available. The selection of the proper respirator must be based on an evaluation of the hazard present, including a determination of the concentration and form of the contaminant and/or lack of sufficient oxygen to sustain life.

There are two basic categories of respirators: Air-purifying respirators and atmosphere-supplying respirators.

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AIR-PURIFYING RESPIRATORS

Air-purifying respirators are designed to remove specific contaminants from the air before you inhale them. WARNING: Some contaminants cannot be removed by air-purifying respirators. Air-purifying respirators are NOT to be used in situations which are immediately dangerous to life or health (IDLH) or when the contaminants are unknown. Proper selection of an air-purifying respirator depends on:

—The contaminant to be removed from the air.
—The concentration of that contaminant.
—The efficiency of the respirator against that contaminant.
—The warning property(ies) of that contaminant.

There are two types of air-purifying respirators:

—Filtering purifiers to remove dusts, mists, and fumes.
—Sorbent purifiers to remove gases and vapors.

For each type of respirator, there is a variety of air-purifying filters, cartridges, or canisters. Each is designed to protect against specific contaminants. Cartridges are small and are usually attached directly to the facepiece. They are designed to protect against low concentrations of contaminants. Canisters are larger and are usually connected to the facepiece with a breathing tube. Canisters are designed to protect against higher concentrations of contaminants. The contaminants and their expected concentrations must be known before a decision can be made as to the type of facepiece to use and which cartridge or canister is required. You must never use the wrong cartridge or canister or use one type of cartridge on one side of your facepiece and a different type on the other side. Be sure batteries are charged on powered air-purifiers.

The cartridge or canister should be replaced at least once per day to prevent saturation of the filter or sorbent materials. More frequent changes may be necessary. Air-purifying respirators should only be used against contaminants with "warning properties" (odor, irritation, etc.). If you become aware of these, your cartridge may no longer be removing the contaminants. You should immediately go to a clean area to check your respirator and replace the cartridge or canister if necessary. Your supervisor should give you specific instructions.

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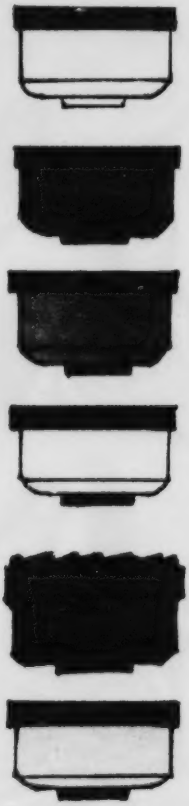
Cartridges and canisters are color-coded for their specific use. Typical cartridge color codes are indicated below:

Atmospheric Contaminants	Assigned Color
Acid gas	White
Organic vapors	Black
Ammonia gas	Green
Acid gases and organic vapors	Yellow
Radioactive materials and highly toxic particulates, except tritium and the inert gases	Purple (Magenta)
Pesticides	Chartreuse



Particulates (dusts, fumes, mists, or smokes) in combination with any of the above gases.

Canister color for the contaminant is designated above with a ½" grey stripe completely around the canister near the top.

READ THE WORDING ON THE LABEL

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ATMOSPHERE-SUPPLYING RESPIRATORS

Atmosphere-supplying respirators supply air to the facepiece from an uncontaminated (clean) air source. These respirators come in two basic types:

—Air-line respirator, which provides clean air to your face mask through a connecting hose from a large tank of compressed air or an air compressor located in a clean area.

—Self-contained breathing apparatus (SCBA), which provides clean air to your facepiece from an air cylinder carried on your back. These respirators are used in the positive-pressure mode during situations which are immediately dangerous to life or health (IDLH) or in unknown atmospheres. Additional special training is required for their proper use and maintenance. Since this air supply is portable, it has only limited capacity, depending upon particular breathing requirements. A warning signal is given when approximately 5 minutes of air remain. When the warning signal sounds, you should stop work and leave the contaminated area immediately. Proceed to a clean area to obtain a full cylinder. Keep your supervisor and buddy informed.

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RESPIRATOR USAGE

A qualified person should be available at the work site to identify safety and health hazards, establish the proper level of respiratory protection for you, and assist in the selection and fitting of your respirator.

Beards and certain facial hair are not permitted because they may affect the acceptable seating and sealing of the respirator, allowing contaminated air to seep in. Be sure to have your respirator properly fitted.

The temple pieces of regular eyeglasses can interfere with the proper fit of full-facepiece respirators. Special glasses can be fitted inside this type of facepiece for workers requiring corrective lenses. Safety glasses or regular glasses with goggles can be used with other facepieces. Contact lenses are not permitted with any type of respirator. Respirators may not work properly due to exposures to extreme heat/cold or after repeated use. Therefore, frequent maintenance checks should be performed. Daily care and maintenance of the respirator, including proper storage in a clean area, should be a regular part of the operation. Your supervisor will advise you of your responsibilities.

In general, wearing a respirator places an additional stress on your body. Your pre-employment physical examination should determine whether you are physically capable of handling this additional stress. Your ongoing medical monitoring program should determine if continued respirator use has adversely affected you.

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MECHANICAL EQUIPMENT SAFETY

When handling containers or removing contaminated soils, etc., a variety of types and sizes of mechanical equipment may be used. It is important to be continually aware of this equipment around you. Operators may be unable to see personnel working near their equipment. Be aware of objects and obstacles overhead at all times. When working around heavy equipment:

—Never walk under suspended loads.
—Never walk in front or back of moving heavy equipment.
—Always be aware of heavy equipment location.
—Always wear a hard hat and proper foot protection.
—Do not operate any heavy equipment unless you are fully qualified and authorized to do so.
—Be aware that equipment can be a source of ignition for flammable or explosive materials.

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Heavy equipment is not the only potential hazard during material handling. Numerous smaller items such as pumps, compressors, generators, portable lights, drums, trucks, and hand tools are very common at hazardous waste sites. If not properly operated, these items can pose as serious a hazard as larger equipment. Some points to remember:

—Be sure all machine guards are in place.

—Use equipment at their recommended speeds and only for the jobs they were designed to do.

—Always keep loose clothing away from moving parts.

—Never pump flammable material with gasoline or electric pumps, use only hand or air-powered diaphragm pumps and be sure to ground your equipment and bond the containers.

—Use only nonsparking tools and be sure to ground equipment and containers when working in a flammable atmosphere or transferring flammable liquids.

—Be aware of the types of fittings on pumps and hoses. For example, acid and caustic will rapidly corrode aluminum.

—Check fluid levels (oil, fuel) periodically. Never add fuel to equipment while it is running.

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HEAT STRESS

The stress of working in a hot environment can cause a variety of strains on the body, including heat exhaustion or heat stroke; the latter can be fatal. Personal protective equipment can significantly increase heat stress. You should learn to recognize the symptoms of heat stress in yourself and co-workers and take necessary actions when they occur. Your employer should provide instructions on ways to reduce or prevent heat stress, including frequent rest cycles to cool down and replace the body fluids and salts lost through perspiration. Some of the symptoms which indicate heat exhaustion are:

—Clammy skin
—Light-headedness
—Slurred speech
—Rapid pulse
—Weakness, fatigue
—Confusion
—Fainting
—Nausea (vomiting)

If these conditions are noted, take the following actions in the order given:

—Take the victim to a cooler and uncontaminated area.
—Remove protective clothing.
—Give water to drink, if conscious.
—Allow to rest.

Symptoms that indicate heat stroke include:

—Staggering gait
—Hot skin, temperature rise (yet may feel chilled)
—Incoherent, delerious
—Mental confusion
—Convulsions
—Unconsciousness

If heat stroke conditions are noted, take the following actions in the order given:

—Take victim to a cooler and uncontaminated area.
—Remove protective clothing.
—Give water to drink, if conscious.
—Cool the victim with water, cold compresses, and/or rapid fanning.
—Transport the victim to a medical facility for further cooling and monitoring of body functions. HEAT STROKE IS A MEDICAL EMERGENCY.

Additional information on heat-related problems can be found in most first aid books and in the DHHS (NIOSH) Publication Number 80-132, "Hot Environments."

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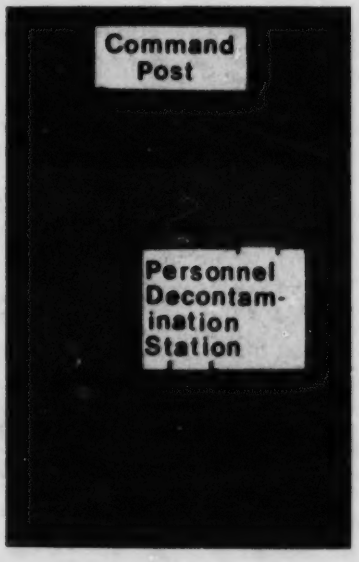
CONTAMINATION/DECONTAMINATION

When working with hazardous wastes, it is important to establish and maintain "clean" areas at the site. Materials found in contaminated areas should be confined to specific "hot" zones whenever possible. Special decontamination zones and procedures should be used to help control the movement of hazardous materials from the "hot" zone.

You should be familiar with all decontamination procedures at your work-site and follow them carefully. After removing contaminated clothing, you should shower, wash your hair, and change into clean clothing in an uncontaminated area. Contaminated clothing or equipment should not be taken home because they could expose others to hazardous materials. Your clothing, tools, and equipment should be decontaminated and stored or disposed of according to your employer's SOPs.

If spills or splashes occur while you are in a contaminated area, proceed immediately to the decontamination area and correct the problem. You may have to obtain clean protective clothing before returning to the contaminated area to continue your work.



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EMERGENCY INFORMATION

It is important that a telephone or two-way radio be available, along with the necessary phone numbers for medical and other emergency services (for example, local rescue squad, fire and police departments). Emergency first aid equipment and medical personnel, or someone who knows how to provide emergency first aid, should always be present and readily available at the worksite. Instructions for the fastest route to the nearest hospital or medical facility should be available, along with necessary transportation equipment.

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EMERGENCY PROCEDURES

Standard Operating Procedures (SOPs) should include plans for unexpected events such as accidents, fires, and explosions, etc.

If you know or suspect that you have been contaminated with a hazardous substance, TELL YOUR SUPERVISOR. You should know the general symptoms of over-exposure to toxic substances.

These include:
—Irritation of skin, eyes, nose, throat, or respiratory tract.
—Changes in complexion or skin discoloration.
—Headaches.
—Difficulty in breathing.
—Nausea.
—Dizziness or light-headedness.
—Excessive salivation (drooling).
—Lack of coordination.
—Blurred vision.
—Cramps and/or diarrhea.
—Changes in behavior patterns.

You should always know the location of emergency eyewash and shower facilities.

Before you enter, and periodically while you are working in confined spaces such as tanks or ditches, the air in the space should be tested by a qualified individual for oxygen content, explosive levels of gases, and contamination.

When you are wearing a respirator (SCBA) in an atmosphere which is immediately dangerous to life or health (IDLH), at least one additional person MUST be present with a similar respirator to help you in case of an emergency. Visual or verbal contact from a safe area must be maintained with those individuals at all times. Your employer should also have a plan to insure that everyone at the site will be protected from any likely incident and should have the necessary rescue equipment available in case of an emergency.

Understand the site emergency rescue procedures and know the locations of rescue equipment before the need arises. If you must rescue someone, use caution and the proper protective equipment. DO NOT BECOME A CASUALTY YOURSELF.

Move the affected person from the hazardous exposure if possible. Get help if you need it and follow emergency rescue procedures.

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MEDICAL SURVEILLANCE PROGRAM

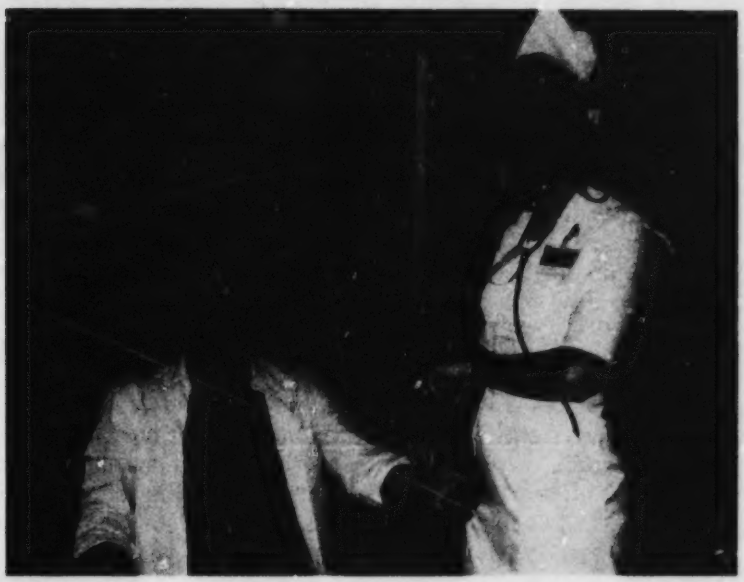
Medical surveillance is an important part of an occupational health and safety program. It is a way of keeping track of your health through the use of preplacement and periodic medical examinations and laboratory tests. This medical surveillance program will help your doctor to:

—Determine a base-line picture of your health against which future changes can be measured.

—Identify any underlying illnesses or conditions which might be aggravated by certain exposures or job activities.

—Recognize any abnormalities, toxic reactions, or other changes in your health—at the earliest opportunity—so that corrective measures can be taken.

The medical records developed as part of the medical surveillance program are important aids to your doctor should you develop health problems which may be associated with exposure to hazardous substances. When abnormal conditions are discovered early enough, appropriate action to correct these and/or prevent more serious conditions can usually be taken.



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HEALTH AND SAFETY PROGRAM

The following 10 points summarize elements of a sample program for worker health and safety.

1—A proper identification and quantification of the materials to be handled.

2—A constant surveillance of the work environment (for example, a knowledge of weather conditions, contaminant levels, and fire/explosion potential).

3—The necessary protective equipment available and properly maintained (that is, both the personal protective equipment and the engineering equipment to provide protection from and/or isolation of the hazard).

4—An appropriate medical surveillance program, including a record of pre-employment conditions and work-related exposures.

5—A fire and spill emergency control plan.

6—A proper decontamination program (that is, a method of preventing unnecessary worker exposure and eliminating migration of contaminants from the site).

7—A comprehensive site work plan.

8—A communication/safety program which keeps track of everyone on-site and provides for medical, emergency, and/or community contacts.

9—A site security plan for properly designating and controlling access to and exit from contaminated, decontaminated, and safe areas.

10—A proper logistics plan (that is, appropriate arrangements for eating, sleeping, washing and drinking water, compressed air, etc.).

You CAN work safely at a hazardous waste site if you are informed of the hazards involved, receive the necessary training, follow the proper procedures and/or instructions, use the required personal protective equipment, and remain aware of the conditions or situations around you at all times.

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HHS 396

DHHS (NIOSH) Publication No. 83-100

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Mr. DUFFY. Mr. Chairman, members of the subcommittee, I am Richard M. Duffy, director of the International Association of Firefighters, Department of Occupational Health and Safety.

On behalf of the IAF, I am here today to discuss the special problems faced by this Nation's firefighters while fighting fires or performing emergency activities at hazardous material worksites.

The more than 30,000 hazardous waste sites throughout the United States and the transportation of such hazardous substances poses still more new and significant potential health risks for this Nation's firefighters.

Today, the firefighter is often called to hazardous materials site for either a fire or other emergency, mostly without proper training and adequate protective equipment.

Due to this dilemma, our union has been quite concerned over the lack of health and safety protection afforded firefighters responding to such situations, regardless of whether the site was under the jurisdiction of the so-called Superfund Program.

Hazardous material incidents present firefighters with a wide variety of hazards, markedly different from those encountered in a structural fire. Exposure to many hazardous materials requires the use of specialized protective clothing. However, firefighters are usually responding in clothing designated for structural firefighting.

Conversely, the U.S. Coast Guard's emergency response team, which often respond to the same incident hours, or even days, after the firefighter first arrives, uses elaborate and expensive chemical protective suits, which they typically dispose of after each use.

Such disposal is mandated through the Coast Guard's established protocol, even with $2,000 to $3,000 suits, because they do not know what effect the exposure has on the integrity of the garment.

Such policy was developed since the U.S. Coast Guard recognized that hazardous materials emergencies frequently involve chemicals of multiple types of unknown concentrations.

While the effects of exposure to a single substance may be well-documented, exposure to several different chemicals simultaneously may result in additive-antagonistic, which is the mixture of two or more materials that counteracts or neutralizes the effects of each material individually, or synergistic, the action of two or more materials to achieve an effect of which each is individually incapable of effects on such protective clothing.

There is not one fire department in this country that has tried to afford its firefighters with such protection. Adequate hazardous material site response training also does not exist in the fire service in this country.

There is a glaring need to establish fire service policy, fire service responsibility, and mandatory requirements for firefighters' occupational safety and health training and occupational health monitoring of all firefighters engaged in activities at all hazardous material waste sites.

It is time that the firefighter becomes certified and has materials which would require firefighters to have successfully completed minimum classroom and field training requirements for that specified level of training.

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Firefighters should then not be permitted any entry onto any hazardous material site or to engage in hazardous material emergency activities without being trained and certified to a level commensurate with the degree of anticipated hazards.

Course curricula and training program development must be initiated without delay if we are to protect this Nation's firefighter.

In addition, firefighters are frequently inadequately treated in hospital emergency rooms, because of lack of knowledge of the type of toxic substances they have been exposed to.

Obviously, knowing the type of toxic or hazardous material cannot only avoid a firefighter entering an environment without proper protective clothing and equipment and training, but possibly save his life if he were exposed to toxic materials through proper medical examination and care.

The following case studies are indicative of the risks faced by firefighters. In 1980, a fire broke out at a chemical dump site in Elizabeth, NJ. The picture of the fire is here to the right. The State of New Jersey took over the site 2 years earlier, had inventoried and removed 10,000 of the approximately 55,000 50-gallon drums of chemical waste present at the site.

While the fire was in progress, no one was aware of what those remaining 45,000 drums contained. Firefighters fought the fire out of control for over 11 hours, and remained on the scene putting the fire out for days afterwards; almost all without respiratory protective equipment because none was available; and all without proper training.

Our organization immediately requested that NIOSH conduct a health hazard evaluation, and they responded by being at the scene the next day. NIOSH found that a high percentage of firefighters were experiencing some symptoms at the time of their medical screening, seven to 10 days after the fire.

Nose and throat irritation was the most common symptom, along with acute respiratory distress, coughing, wheezing, shortness of breath, and there was also a high prevalence of skin dermatitis due to chemical burns.

However, the full effect of this fire is still unknown. The possibility of chronic diseases developing has caused NIOSH to undertake a long-term evaluation of the Elizabeth, NJ firefighters.

Besides the obvious implications of the NIOSH health hazard evaluation, there are two glaring examples of the problems confronting the firefighter. The first is illustrated in the picture to my left of a firefighter rowing a boat with a Federal inspector on board.

In this picture, the firefighter is wearing his normal clothing. By normal, I mean he has a pair of boots rolled down below his knee, he has polyester pants on, he has a structural firefighting coat on that is not even snapped, a dress helmet, and is rowing the boat for this Federal inspector.

The Federal inspector has on an elaborate chemical suit. No part of his body is exposed whatsoever. He is afforded respiratory protection, and he has even gone so far as to wear a life preserver.

The second example occurred after the same fire, where the firefighters took back the hose lines back to their stationhouse and began cleaning it.

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The substances on the hose were draining right by a mobile van, or many mobile vans that acted as headquarters for the U.S. Environmental Protection Agency and the U.S. Coast Guard as well as other Federal and State regulatory agencies, until we pointed out that the hose contained the same toxic chemicals that were present at the dump site.

I have enclosed copies of the health hazard evaluation for the committee. However, I would like to note one of the recommendations NIOSH made, and that, and I quote, "steps should be taken to assure that enough proper personal protective equipment is readily available for firefighters for any future similar incident."

Our question is, why were the firefighters uninformed of the exposure potential during the 2 years that the Government officials were beginning to inventory the wastes that were present and cycling up continued?

Additionally, we are unaware of any pre-fire or pre-emergency planning with the fire departments having jurisdiction over the numerous hazardous waste sites across the country.

For example, on June 20, 1983, we again asked NIOSH to investigate the possible health effects among firefighters following a fire that occurred on June 15, 1983, at Liquid Disposal, Inc.

During the years of operation, LDI had numerous problems. In fact, in 1982, the Michigan Department of Natural Resources designated the site as the second worst hazardous site in the State of Michigan, and was ranked 26th by the U.S. Environmental Protection Agency for remedial action under Superfund.

I have enclosed a NIOSH-HHE report which details the fire and results.

I would like to mention two issues resulting from this event. The first is when we became involved with the investigation, we were surprised when EPA and the contractor's representative at the LDI site, and one of the contractor's Washington, DC. employees who identified himself as an EPA toxicologist, advised firefighters that medical exams were not required, and that protective clothing and equipment contaminated from the toxic materials at the site, including PCB-contaminated waste oil, could be decontaminated by normal washing.

Only after the IFF intervened and contacted the EPA Emergency Response Operations staff in Washington was the matter resolved. Equipment was then properly decontaminated and most was replaced by EPA, and medical exams were performed by NIOSH.

However, for several days after the fire, the firefighters were not properly examined, and were without any protective clothing or equipment, and thus could not effectively respond to emergencies, resulting in an obvious risk to themselves and to the public.

We informed then-EPA Administrator William Ruckelshaus of this continuing problem with waste site emergency activities for firefighters. We were informed in December of 1983 by then-Assistant Director Lee Thomas that EPA agreed with our concerns, that standard operating procedures should be established to address these issues.

Mr. Thomas stated,

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I plan to initiate development of these procedures immediately. Although details remain to be worked out, the procedures will provide for decontamination or replacement, of it is more cost-effective, of firefighters' equipment.

This policy will be applicable to equipment contaminated responding to incidents funded under the Comprehensive Environmental Response Compensation and Liability Act of 1980.

I have enclosed this correspondence for the committee, however, I would like to inform this committee that the IAFF is still waiting for the EPA commitment to materialize. Additionally, if the IAFF had not been involved by initiating our own investigation and requesting the assistance of NIOSH, nothing would have happened for the firefighters at this site.

EPA, OSHA, or State officials did not provide any assistance to protect those firefighters.

Second, NIOSH recommended that because, and I quote:

Because of the expressed concerns and questions regarding hazardous material sites, an educational program about toxic substances should be established for firefighters.

The focus of this program should include how chemicals move through the environment, understanding how risks to human health occur, and a perspective on dump sites. This program should be made available to firefighters, police officers, health care personnel, township and other community officials, and to the general public.

A subsequent training program for fighting chemical fires should also be established. Although EPA has indicated it will be responsive to firefighters responding to emergencies at Superfund sites, there are many other times that firefighters must confront similar situations without the recourse or assistance from Superfund.

For example, IAFF worked with NIOSH following an explosion and fire at a site in Poughkeepsie, NY in January 1984. NIOSH analyzed the protective clothing worn by the firefighters in extinguishing the blaze at the plant, which stored large numbers of chemicals to manufacture dyes.

NIOSH found that many of the protective garments that were analyzed were perforated by acid burns or were contaminated with the chemicals stored in the plant. NIOSH estimated it would be more expensive to decontaminate such clothing than to purchase new clothing itself.

In too many instances, firefighters are simply unaware that the protective clothing that they are wearing is even contaminated. In other cases, municipalities state that they cannot afford to replace the contaminated clothing.

It is not inconceivable that when trying to clean the protective clothing through normal washing with soap and water, the uniforms the firefighters are wearing become contaminated themselves.

The very same uniforms are taken home, usually by the firefighter, and placed in the washing machine with the rest of the family's clothing.

Another example is the toxic nature of combustion byproducts.

And I would like to give one final example: Following an explosion and fire on January 29, 1984, at the American Electric Corp., warehouse in Jacksonville, FL, our concern was again the failure to inform the firefighters of potential health hazards by Federal personnel on the scene, and the blatant disregard for obvious

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unsafe actions by not only the firefighter, but the private clean-up contractor and the workers they hired for site mitigation.

It is important that I briefly explain the potential health risks of our concern, and what happened here. The site is on your right. It was a site containing large quantities of PCB oil. That burned. It was a hot, structural fire.

When PCB oils are heated, two possible substances are formed, and will typically form, and those are dibenzodioxins and chlorinated dibenzofurans. The possibility of significant exposure to firefighters was there, and should have been realized.

The picture here on the left shows firefighters at the scene after the fire was placed out. The levels of PCB right below the fireman's foot on your right is over 30,000 parts per million. The Federal standard is 50 parts per million. They were allowed to take their structural firefighting clothing off and even allowed to smoke in an area that was significantly contaminated.

What had happened, the EPA personnel on-scene decided that to follow the new administrative policy, the administration's policy, which is to get big government off industry's back and allow for the industry to clean up by themselves.

So what that particular company did, they went downtown to day workers and hired the people you see here on my right. They had absolutely no training on chemical site mitigation, no training in site clean-up, and were allowed to go on-scene to perform this clean-up without any protection.

Myself and a NIOSH industrial hygienist were, with force, allowed on scene finally, to make some measurements for firefighters. So obviously, there is a problem at many of these Superfund and other hazardous material sites.

And these incidents also point out the need for extensive research to be performed in the area of developing chemical protective clothing, decontamination procedures, combustion byproducts and acute and chronic medical surveillance programs, and adequate training programs for firefighters.

In conclusion, I would like to thank the committee for the opportunity to address the disgregard for this Nation's firefighters, as well as all other workers at toxic waste sites by the Federal Government, including the Occupational Safety and Health Administration and the Environmental Protection Agency.

We believe that this continual inaction to protect workers is criminal. We commend the action of this committee, through such hearings, in assisting to assure that those governmental agencies responsible for the health and safety of this Nation's work force carry out their respective mandate.

Thank you very much.

[The prepared statement of Richard M. Duffy follows:]

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PREPARED STATEMENT OF RICHARD M. DUFFY, DIRECTOR, OCCUPATIONAL HEALTH AND SAFETY DEPARTMENT, INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS, AFL-CIO-CLC

MR. CHAIRMAN, MEMBERS OF THE SUBCOMMITTEE, I AM RICHARD M. DUFFY, DIRECTOR OF THE INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS' DEPARTMENT OF OCCUPATIONAL HEALTH AND SAFETY. ON BEHALF OF THE IAFF, I AM HERE TODAY TO DISCUSS THE SPECIAL PROBLEMS FACED BY THIS NATION'S FIRE FIGHTERS WHILE FIGHTING FIRES OR PERFORMING EMERGENCY DUTIES AT HAZARDOUS MATERIALS WORKSITES.

PRIOR TO DOING THIS, I BELIEVE IT IS IMPORTANT FOR YOU TO UNDERSTAND WHAT OUR ORGANIZATION IS AND WHO WE REPRESENT AT THESE HEARINGS.

THE IAFF IS AN INTERNATIONAL UNION AFFILIATED WITH THE AFL-CIO AND THE CANADIAN LABOR CONGRESS. AT THE PRESENT TIME, WE REPRESENT APPROXIMATELY 170,000 PAID PROFESSIONAL FIRE SERVICE EMPLOYEES IN THE UNITED STATES AND CANADA. THE MEMBERSHIP OF THE IAFF IS EMPLOYED BY VARIOUS PARTIES WHICH INCLUDE: THE FEDERAL GOVERNMENT, STATES, COUNTIES, MUNICIPALITIES, FIRE DISTRICTS, AIRPORTS, INDUSTRIAL MANUFACTURERS, AND SO ON.

THE IAFF HAS BEEN ACTIVELY INVOLVED IN THE HEALTH AND SAFETY PROBLEMS OF FIRE FIGHTERS FOR MORE THAN TWENTY YEARS. EACH YEAR WE CONDUCT AN ANNUAL DEATH AND INJURY SURVEY WITH THE COOPERATION AND PARTICIPATION OF VARIOUS FIRE DEPARTMENT ADMINISTRATORS. THIS SURVEY HAS SHOWN THAT FIRE FIGHTING IS THE MOST HAZARDOUS OCCUPATION IN THE UNITED STATES.

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DURING 1983--WHICH INCLUDES OUR MOST CURRENT STATISTICS--THE SURVEY FOUND THAT PROFESSIONAL FIRE FIGHTERS EXPERIENCED 42 LINE-OF-DUTY DEATHS, 86 OCCUPATIONAL DISEASE DEATHS, 48,896 INJURIES AND 648 FORCED RETIREMENTS DUE TO OCCUPATIONALLY INDUCED DISEASES OR INJURIES ANNUALLY. FIRE FIGHTER LINE-OF-DUTY FATALITIES HAVE BEEN MORE THAN THOSE OF POLICE OFFICERS AND ALSO RANK ABOVE OTHER PUBLICIZED HAZARDOUS OCCUPATIONS IN THE PRIVATE SECTOR.

OF THE INJURIES REPORTED, APPROXIMATELY 75 PER CENT OCCUR WHILE AT THE EMERGENCY SCENE. SPRAINS AND STRAINS ARE THE LEADING CAUSE OF ON-DUTY INJURY FOLLOWED BY LACERATIONS AND CONTUSIONS, BURNS, INHALATION OF HAZARDOUS MATERIALS, AND EYE INJURIES. THE DATA SHOWED THAT MORE 40% OF ALL IAFF FIRE FIGHTERS CAN BE EXPECTED TO BE INJURED AT LEAST ONCE DURING THE COURSE OF THE YEAR.

COMBINED, HEART DISEASE AND CANCER CONSTITUTE MORE THAN 90 PER CENT OF ALL REPORTED FIRE FIGHTER DEATHS DUE TO OCCUPATIONAL DISEASES. IN OUR MOST RECENT SURVEY--COVERING 1983--OCCUPATIONAL DISEASE DEATHS WERE ATTRIBUTED TO HEART DISEASE (48%), CANCER (42%) AND LUNG DISEASE (7%).

TO TRULY UNDERSTAND WHAT THESE STATISTICS MEAN AND WHY THEY EXIST, I WOULD LIKE TO TAKE THE NEXT FEW MOMENTS TO EXAMINE THE NATURE OF FIRE FIGHTING. FIRE FIGHTERS ARE CONSTANTLY MAKING TRANSITIONS FROM THE CALM, PEACEFUL ENVIRONMENT OF THE FIREHOUSE TO THE HOSTILITY PRESENTED

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BY FIRE. THESE CONSTANT TRANSFORMATIONS FROM QUIET TO RAGING INFERNOS HAVE NUMEROUS PSYCHOLOGICAL AND PHYSIOLOGICAL SIDE-EFFECTS. WITHIN 15-30 SECONDS AFTER THE FIRE ALARM SOUNDS, RESEARCH STUDIES HAVE FOUND THAT A FIRE FIGHTER'S HEART RATE CAN INCREASE BY AS MUCH AS 117 BEATS PER MINUTE. IN ADDITION, A FIRE FIGHTER'S HEART CAN BEAT AT TWICE ITS NORMAL RATE THROUGHOUT THE ENTIRE FIRE FIGHTING OPERATION. THESE EXTREME PHYSIOLOGICAL STRESSES OBVIOUSLY LEAD TO SEVERE CORONARY PROBLEMS, WHICH HAVE BEEN DOCUMENTED BY NUMEROUS AUTHORITIES.

THE WORKING ENVIRONMENT CAN ALSO MEAN A TRANSITION FROM BELOW FREEZING TEMPERATURES TO TEMPERATURES BETWEEN 100 DEGREES AND 500 DEGREES FAHRENHEIT AT THE FIRE ITSELF. THESE TEMPERATURE EXTREMES CAN LEAD TO FROSTBITE ALONG WITH NUMEROUS CARDIOVASCULAR AND PULMONARY DISORDERS SUCH AS ACUTE CIRCULATORY COLLAPSE, HYPERTENSION, PNEUMONIA, AND BRONCHITIS.

FIRE FIGHTING INVOLVES STRENUOUS PHYSICAL ACTIVITY THAT IS MADE MORE BURDENSOME BY THE FACT THAT PROTECTIVE CLOTHING AND BREATHING APPARATUS A FIRE FIGHTER WEARS ADDS 45 TO 65 POUNDS. NEVERTHELESS, THE FIRE FIGHTER PERFORMS SUCH VITAL ACTIVITIES AS CARRYING HEAVY HOSE UP FLIGHT OF STAIRS, FIGHTING WATER PRESSURE TO KEEP THE HOSE POINTED AT THE FLAMES, CLIMBING ONTO ROOFTOPS CARRYING AXES TO VENTILATE THE BURNING STRUCTURE AND SO FORTH.

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WHEN A FIRE DESTROYS A RESIDENTIAL HOME OR AN INDUSTRIAL FACTORY, IT REPRESENTS A WORK ENVIRONMENT THAT CLOSELY RESEMBLES, AT FIRST GLANCE, WHAT FIRE FIGHTERS FACED SEVERAL HUNDRED YEARS AGO. HOWEVER, TECHNOLOGY HAS CREATED A DISTINCT DIFFERENCE IN THE MODERN FIRE ENVIRONMENT: POLYVINYLCHLORIDE, ASBESTOS, AND POLYCHLORINATED BIPHENYLS, TO NAME JUST A SELECT FEW. THESE CHEMICAL COMPOUNDS ARE COMMONPLACE INGREDIENTS IN OUR ENVIRONMENT AS COMPONENTS OF HOUSEHOLD FURNITURE, PLASTIC PIPES, WALL COVERINGS, AUTOMOBILES, BUSES, AIRPLANES, AND COVERINGS FOR ELECTRICAL AND OTHER INSULATION MATERIALS.

THE POTENTIAL OF THESE CHEMICAL SUBSTANCES TO CAUSE BODILY HARM TO THE FIRE FIGHTER IS DEPENDENT UPON MANY FACTORS AT THE FIRE SCENE: THE LEVEL OF CONCENTRATION, RESPIRATORY RATE AND VOLUME, TIME OF EXPOSURE, CLOTHING WORN AND TYPE OF RESPIRATORY EQUIPMENT USED. UNLIKE EVEN HUMAN SKIN, WHICH CAN RESIST CERTAIN MATERIALS, THE LUNGS LACK ANY PROTECTION TO RESIST THESE TOXIC SUBSTANCES. IN ADDITION, THESE TOXIC MATERIALS CAN BE ABSORBED BY A SURFACE AREA IN THE LUNGS THAT IS FORTY (40) TIMES GREATER THAN THE BODY'S OUTSIDE SURFACE AREA.

THE HEALTH EFFECTS CAN BE SHORT-TERM OR EVEN INITIALLY NON-EXISTENT. SUCH EXPOSURES CAN AND DO RESULT IN LONG-TERM ILLNESSES INVOLVING THE CARDIOVASCULAR SYSTEM, THE RESPIRATORY SYSTEM, THE CENTRAL NERVOUS SYSTEM AND OTHER BODY ORGANS.

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DESPITE OUR COMMON AWARENESS TODAY THAT IT IS RESPIRATORY PROBLEMS THAT ACCOUNT FOR 80% OF ALL FIRE DEATHS, IT WASN'T ALWAYS OUR PERCEPTION. IN FACT, WE INITIALLY BELIEVED JUST THE OPPOSITE, THAT IS, DEATHS WERE PRIMARILY DUE TO THE FIRE'S FLAMES. ONE OF THE FIRST FIRE INCIDENTS TO ALTER OUR VIEWPOINT OCCURRED IN 1929 AT THE CLEVELAND CLINIC. THIS FIRE, WHICH DESTROYED THE LABORATORY'S X-RAY FILMS CAUSED THE DEATH OF 125 PERSONS. AN ANALYSIS AFTERWARDS INDICATED THAT THE PRESENCE OF CARBON MONOXIDE AND OXIDES OF NITROGEN WERE RESPONSIBLE FOR THE MAJORITY OF THE FATALITIES—NOT THE FLAMES OF THE FIRE.

THE 1980 FIRE AT THE MGM GRAND HOTEL IN LAS VEGAS PROVIDED YET ANOTHER GRIM REMINDER OF THE TOXIC EFFECTS OF SMOKE. MOST OF THE 84 FATALITIES AND 679 INJURED DURING THE BLAZE WERE DUE TO THE INHALATION OF TOXIC GASES CONTAINING CARBON MONOXIDE, HYDROGEN CHLORIDE AND HYDROGEN CYANIDE.

DURING THE LAST TWO DECADES, THE RAPID PROLIFERATION OF SYNTHETIC PRODUCTS ENTERING THE MARKETPLACE HAS ADDED A NEW DIMENSION TO FIRE FIGHTING. THE PRESENCE OF SYNTHETIC MATERIALS CAN BE EXPECTED AT EVERY FIRE EMERGENCY, BECAUSE OF THE VARIETY OF PRODUCTS THAT ARE MADE SUCH AS FURNITURE, ELECTRIC WIRE INSULATION, OFFICE EQUIPMENT AND KITCHEN GADGETS. IT IS ESTIMATED THAT THERE ARE OVER 30 BILLION POUNDS OF PLASTIC MADE ANNUALLY IN THE UNITED STATES ALONE. OF THESE PLASTICS, ABOUT 13

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BILLION POUNDS IS POLYETHYLENE AND 6 BILLION POUNDS IS POLYVINYLCHLORIDE.

THE RAPID PROLIFERATION OF THESE SYNTHETIC MATERIALS IN OUR SOCIETY HAS CAUGHT THE SCIENTIFIC COMMUNITY OFF-GUARD. THERE ARE SIMPLY TOO MANY NEW CHEMICALS AND TOO FEW FUNDS TO RESEARCH ALL OF THEIR POTENTIAL HAZARDS. SINCE THE BEGINNING OF WORLD WAR II, THE PRODUCTION OF SYNTHETIC CHEMICALS HAS INCREASED 330-FOLD. WITH THE ADDITION OF THOUSANDS OF NEW CHEMICALS ANNUALLY, IT BECOMES IMPOSSIBLE TO STUDY THE CARCINOGENIC PROPERTIES OF EACH AND EVERY ONE OF THEM. THE NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH) REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES CONTAINS MORE THAN 65,000 SUBSTANCES, WHICH HAVE BEEN SHOWN TO PRODUCE SOME TYPE OF TOXIC EFFECT ON ANIMALS AND/OR HUMANS. NIOSH ESTIMATES THAT THERE ARE APPROXIMATELY 100,000 SUBSTANCES THAT MAY HAVE SOME TYPE OF TOXIC EFFECT. OF THE SUBSTANCES LISTED IN THE REGISTRY, ALMOST 3,000 HAVE DEMONSTRATED A POSITIVE RELATIONSHIP TO CARCINOGENICITY.

THUS, THE PROLIFERATION OF SYNTHETIC SUBSTANCES INTO THE MARKETPLACE HAS ADDED A NEW DIMENSION TO FIRE FIGHTING. FIRE FIGHTERS ARE INCREASINGLY EXPOSED TO KNOWN AND SUSPECTED CARCINOGENIC AGENTS WHETHER AT A RESIDENTIAL, HARDWARE STORE, DRUG STORE, DRY CLEANING ESTABLISHMENT, PESTICIDE WAREHOUSE OR CHEMICAL MANUFACTURING PLANT FIRE.

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THE MORE THAN 30,000 HAZARDOUS WASTE SITES THROUGHOUT THE UNITED STATES AND THE TRANSPORTATION OF SUCH HAZARDOUS SUBSTANCES POSES STILL MORE NEW AND SIGNIFICANT POTENTIAL HEALTH RISKS FOR FIRE FIGHTERS. TODAY'S FIRE FIGHTER IS OFTEN CALLED TO THE HAZARDOUS WASTE SITE FOR EITHER A FIRE OR OTHER EMERGENCIES, MOSTLY WITHOUT PROPER TRAINING AND ADEQUATE PROTECTIVE EQUIPMENT. DUE TO THIS DILEMMA, THE INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS, HAS BEEN QUITE CONCERNED OVER THE LACK OF HEALTH AND SAFETY PROTECTION AFFORDED FIRE FIGHTERS RESPONDING TO HAZARDOUS WASTE SITE--REGARDLESS OF WHETHER THE SITE FALLS UNDER THE JURISDICTION OF THE "SUPERFUND" PROGRAM.

HAZARDOUS MATERIALS INCIDENTS PRESENT FIRE FIGHTERS WITH A WIDE VARIETY OF HAZARDS MARKEDLY DIFFERENT FROM THOSE ENCOUNTERED AT A STRUCTURAL FIRE. EXPOSURE TO MANY HAZARDOUS MATERIALS REQUIRES THE USE OF SPECIALIZED PROTECTIVE CLOTHING, HOWEVER, FIRE FIGHTERS ARE USUALLY RESPONDING IN CLOTHING DESIGNED FOR STRUCTURAL FIRE FIGHTING. CONVERSELY, THE UNITED STATES COAST GUARD'S EMERGENCY RESPONSE TEAM--WHICH OFTEN RESPONDS TO THE SAME INCIDENTS HOURS OR DAYS AFTER THE FIRE FIGHTERS FIRST ARRIVED--UTILIZES ELABORATE AND EXPENSIVE CHEMICAL PROTECTIVE SUITS, WHICH THEY TYPICALLY DISPOSE OF AFTER USE. SUCH DISPOSAL IS MANDATED THROUGH THE COAST GUARD'S ESTABLISHED PROTOCOL--EVEN WITH $2,000 - $3,000 SUITS--BECAUSE THEY DO NOT KNOW WHAT EFFECT THE EXPOSURE HAS ON THE INTEGRITY OF THE GARMENT. SUCH POLICY WAS DEVELOPED SINCE THE USCG RECOGNIZED THAT HAZARDOUS MATERIALS

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EMERGENCIES FREQUENTLY INVOLVE CHEMICALS OF MULTIPLE TYPES AND OF UNKNOWN CONCENTRATIONS. WHILE THE EFFECTS OF EXPOSURE TO A SINGLE SUBSTANCE MAY BE WELL DOCUMENTED, EXPOSURE TO SEVERAL DIFFERENT CHEMICALS SIMULTANEOUSLY MAY RESULT IN ADDITIVE, ANTAGONISTIC (A MIXTURE OF TWO OR MORE MATERIALS THAT COUNTERACTS OR NEUTRALIZES THE EFFECTS OF EACH MATERIAL INDIVIDUALLY) OR SYNERGISTIC (THE ACTION OF TWO OR MORE MATERIALS TO ACHIEVE AN EFFECT OF WHICH EACH IS INDIVIDUALLY INCAPABLE) EFFECTS ON PROTECTIVE CLOTHING. THERE IS NOT ONE FIRE DEPARTMENT IN THIS COUNTRY THAT IS ABLE TO AFFORD ITS FIRE FIGHTERS WITH SUCH PROTECTION.

ADEQUATE HAZARDOUS MATERIAL SITE RESPONSE TRAINING ALSO DOES NOT EXIST WITHIN THIS COUNTRY'S FIRE SERVICE. THERE IS A (GLARING) NEED TO ESTABLISH FIRE SERVICE POLICY, FIRE SERVICE RESPONSIBILITY, AND MANDATORY REQUIREMENTS FOR FIRE FIGHTERS OCCUPATIONAL HEALTH AND SAFETY TRAINING AND OCCUPATIONAL HEALTH MONITORING OF ALL FIRE FIGHTERS ENGAGED IN ACTIVITIES AT ALL HAZARDOUS MATERIAL WASTE SITES. IT IS TIME THAT FIRE FIGHTERS BECOME CERTIFIED IN HAZARDOUS MATERIALS WHICH WOULD REQUIRE FIRE FIGHTERS TO HAVE SUCCESSFULLY COMPLETED MINIMUM CLASSROOM AND FIELD TRAINING REQUIREMENTS FOR THAT SPECIFIED LEVEL OF TRAINING. FIRE FIGHTERS SHOULD THEN NOT BE PERMITTED ANY ENTRY ONTO ANY HAZARDOUS MATERIAL SITE OR TO ENGAGE IN HAZARDOUS MATERIAL EMERGENCY ACTIVITIES WITHOUT BEING TRAINED AND CERTIFIED TO A LEVEL COMMENSURATE WITH THE DEGREE OF ANTICIPATED HAZARDS. COURSE

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CURRICULA AND TRAINING PROGRAM DEVELOPMENT MUST BE INITIATED WITHOUT DELAY IF WE ARE TO PROTECT THIS NATION'S FIRE FIGHTER.

IN ADDITION, FIRE FIGHTERS ARE FREQUENTLY INADEQUATELY TREATED IN HOSPITAL EMERGENCY ROOMS BECAUSE OF LACK OF KNOWLEDGE OF THE TYPE OF TOXIC SUBSTANCES THEY HAVE BEEN EXPOSED TO. OBVIOUSLY, KNOWING THE TYPE OF TOXIC OR HAZARDOUS SUBSTANCE CAN NOT ONLY AVOID A FIRE FIGHTER ENTERING AN ENVIRONMENT WITHOUT PROPER PROTECTIVE CLOTHING AND EQUIPMENT AND TRAINING, BUT POSSIBLY SAVE HIS LIFE IF HE WAS EXPOSED TO TOXIC MATERIALS THROUGH PROPER MEDICAL EXAMINATION AND CARE.

THE FOLLOWING THREE CASE STUDIES ARE INDICATIVE OF THE RISK FACED BY FIRE FIGHTERS.

IN 1980, A FIRE BROKE OUT AT A CHEMICAL DUMP SITE IN ELIZABETH, NEW JERSEY. THE STATE, WHICH HAD TAKEN OVER THE SITE 2 YEARS EARLIER, HAD INVENTORIED AND REMOVED 10,000 OF THE APPROXIMATELY 55,000 of the 55 gallon DRUMS OF CHEMICAL WASTE PRESENT AT THE SITE. WHILE THE FIRE WAS IN PROGRESS, NO ONE WAS AWARE OF WHAT THOSE REMAINING 45,000 DRUMS CONTAINED. FIRE FIGHTERS FOUGHT THE FIRE FOR ELEVEN (11) HOURS AND REMAINED ON THE SCENE FOR DAYS; MOSTLY WITHOUT RESPIRATORY PROTECTIVE EQUIPMENT BECAUSE NONE WAS AVAILABLE, AND ALL WITHOUT PROPER TRAINING.

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THE IAFF IMMEDIATELY REQUESTED NIOSH TO CONDUCT A HEALTH HAZARD EVALUATION AND THEY RESPONDED BY BEING AT THE SCENE THE NEXT DAY. NIOSH FOUND THAT A HIGH PERCENTAGE OF FIRE FIGHTERS WERE EXPERIENCING SOME SYMPTOMS AT THE TIME OF THEIR MEDICAL SCREENING, 7 TO 10 DAYS AFTER THE FIRE. NOSE AND THROAT IRRITATION WAS THE MOST COMMON SYMPTOM ALONG WITH ACUTE RESPIRATORY PROBLEMS, SUCH AS COUGHING, WHEEZING AND SHORTNESS OF BREATH. THERE WERE ALSO A HIGH PREVALENCE OF SKIN DERMITITIS DUE TO CHEMICAL BURNS.

HOWEVER, THE FULL EFFECTS OF THIS FIRE ARE STILL UNKNOWN. THE POSSIBILITY OF CHRONIC DISEASES DEVELOPING HAS CAUSED NIOSH TO UNDERTAKE A LONG-TERM EVALUATION OF THE ELIZABETH FIRE FIGHTERS.

BESIDES THE OBVIOUS IMPLICATIONS OF THE NIOSH HHE ARE TWO GLARING EXAMPLES OF THE PROBLEMS CONFRONTING FIRE FIGHTERS. THE FIRST IS ILLUSTRATED IN A PICTURE TAKEN OF A FIRE FIGHTER ROWING A BOAT WITH A FEDERAL INSPECTOR ON BOARD. IN THIS PICTURE, THE FIRE FIGHTER IS WEARING HIS NORMAL CLOTHING WHILE THE FEDERAL WORKER IS PROTECTED BY AN ELABORATE CHEMICAL PROTECTIVE SUIT. OBVIOUSLY, NO FURTHER EXPLANATION IS NEEDED.

THE SECOND EXAMPLE ALSO OCCURRED AFTER THE FIRE WHEN THE FIRE FIGHTERS TOOK THE HOSE BACK TO THE STATION AND BEGAN CLEANING IT. THE SUBSTANCES ON THE HOSE WERE DRAINING RIGHT BY A MOBILE VAN THAT ACTED

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AS HEADQUARTERS FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) AND COAST GUARD AS WELL AS ADDITIONAL FEDERAL AND STATE REGULATORY AGENCIES, UNTIL WE POINTED OUT THAT THE HOSE CONTAINED THE SAME TOXIC CHEMICALS THAT WERE PRESENT AT THE DUMP SITE.

I HAVE ENCLOSED A COPY OF THE NIOSH HEALTH HAZARD EVALUATION FOR THE COMMITTEE, HOWEVER I WOULD LIKE TO NOTE ONE OF THE RECOMMENDATIONS. NIOSH RECOMMENDED THAT "STEPS SHOULD BE TAKEN TO ASSURE THAT ENOUGH PROPER PERSONAL PROTECTIVE EQUIPMENT IS READILY AVAILABLE FOR FIRE FIGHTERS FOR ANY FUTURE SIMILAR INCIDENTS". OUR QUESTION IS, WHY WERE THE FIRE FIGHTERS UNINFORMED OF THE EXPOSURE POTENTIAL DURING THE TWO YEARS THAT GOVERNMENT OFFICIALS WERE BEGINNING TO INVENTORY THE WASTES THAT WERE PRESENT AND SITE CLEAN-UP CONTINUED. ADDITIONALLY, WE ARE UNAWARE OF ANY PRE-FIRE OR PRE-EMERGENCY PLANNING WITH FIRE DEPARTMENTS HAVING JURISDICTION OVER THE NUMEROUS HAZARDOUS WASTE SITES ACROSS THE COUNTRY.

FOR EXAMPLE, ON JUNE 20, 1983 WE AGAIN ASKED NIOSH TO INVESTIGATE THE POSSIBLE HEALTH EFFECTS AMONG FIRE FIGHTERS FOLLOWING A FIRE THAT OCCURRED ON JUNE 15, 1983 AT LIQUID DISPOSAL INCORPORATED. DURING ITS YEARS OF OPERATION, LDI HAD NUMEROUS PROBLEMS. IN FACT, IN 1982 THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES DESIGNATED THE SITE AS THE SECOND WORST HAZARDOUS WASTE SITE IN THE STATE OF MICHIGAN AND WAS RANKED 26th BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY FOR REMEDIAL

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ACTIONS. WHILE I HAVE ENCLOSED THE NIOSH HEALTH HAZARD EVALUATION REPORT, WHICH DETAILS THE FIRE AND THE RESULTS, I WOULD LIKE TO MENTION TWO ISSUES RESULTING FROM THIS EVENT.

THE FIRST IS WHEN WE BECAME INVOLVED WITH THIS INVESTIGATION, WE WERE SURPRISED WHEN EPA AND THE CONTRACTOR'S REPRESENTATIVE AT THE LDI SITE AND ONE OF THE CONTRACTOR'S WASHINGTON, D.C. EMPLOYEES, WHO IDENTIFIED HIMSELF AS AN "EPA TOXICOLOGIST", ADVISED THE FIRE FIGHTERS THAT MEDICAL EXAMS WERE NOT REQUIRED AND THAT PROTECTIVE CLOTHING AND EQUIPMENT CONTAMINATED FROM TOXIC MATERIALS AT THE SITE--INCLUDING PCB-CONTAMINATED WASTE OIL--COULD BE DECONTAMINATED BY NORMAL WASHING. ONLY AFTER THE IAFF INTERVENED AND CONTACTED THE EPA EMERGENCY RESPONSE OPERATIONS STAFF IN WASHINGTON, D.C. WAS THE MATTER RESOLVED. EQUIPMENT WAS THEN PROPERLY DECONTAMINATED AND/OR REPLACED BY EPA AND MEDICAL EXAMS WERE PERFORMED BY NIOSH. HOWEVER, FOR SEVERAL DAYS AFTER THE FIRE, THE FIRE FIGHTERS WERE NOT PROPERLY EXAMINED AND WERE WITHOUT ANY PROTECTIVE CLOTHING OR EQUIPMENT AND THUS COULD NOT EFFECTIVELY RESPOND TO EMERGENCIES, PRESENTING AN OBVIOUS RISK TO THEMSELVES AND THE PUBLIC. WE INFORMED EPA ADMINISTRATOR WILLIAM RUCKELSHAUS OF THIS CONTINUING PROBLEM WITH WASTE SITE EMERGENCY ACTIVITIES FOR FIRE FIGHTERS. WE WERE INFORMED IN DECEMBER OF 1983 BY THEN ASSISTANT ADMINISTRATOR LEE THOMAS THAT EPA AGREED WITH OUR CONCERNS THAT STANDARD OPERATING PROCEDURES SHOULD BE ESTABLISHED TO ADDRESS THESE ISSUES. MR. THOMAS STATED: "I PLAN TO INITIATE

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DEVELOPMENT OF THESE PROCEDURES IMMEDIATELY. ALTHOUGH DETAILS REMAIN TO BE WORKED OUT, THE PROCEDURES WILL PROVIDE FOR DECONTAMINATION (OR REPLACEMENT IF IT IS MORE COST-EFFECTIVE) OF FIRE FIGHTERS EQUIPMENT. THIS POLICY WILL BE APPLICABLE TO EQUIPMENT CONTAMINATED RESPONDING TO INCIDENTS FUNDED UNDER THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980." I HAVE ENCLOSED THIS CORRESPONDENCE, HOWEVER, I WOULD LIKE TO INFORM THE COMMITTEE THAT THE IAFF IS STILL WAITING FOR THE EPA COMMITMENT TO MATERIALIZE. ADDITIONALLY, IF THE IAFF HAD NOT BECOME INVOLVED BY INITIATING OUR OWN INVESTIGATION AND REQUESTING THE ASSISTANCE OF NIOSH NOTHING WOULD HAD HAPPEN FOR THE FIRE FIGHTERS AT THIS SITE. EPA, OSHA, OR STATE OFFICIAL DID NOT PROVIDE ANY ASSISTANCE TO PROTECT THE FIRE FIGHTERS.

SECONDLY, NIOSH RECOMMENDED THAT "BECAUSE OF THE EXPRESSED CONCERNS AND QUESTIONS REGARDING HAZARDOUS WASTES, AN EDUCATION PROGRAM ABOUT TOXIC CHEMICALS SHOULD BE ESTABLISHED (FOR FIRE FIGHTERS). THE FOCUS OF THIS PROGRAM SHOULD INCLUDE HOW CHEMICALS MOVE THROUGH THE ENVIRONMENT, UNDERSTANDING HOW RISK TO HUMAN HEALTH OCCUR, AND A PERSPECTIVE ON DUMP SITES. THIS PROGRAM SHOULD BE MADE AVAILABLE TO FIRE FIGHTERS, POLICE OFFICERS, HEALTH CARE PERSONNEL, TOWNSHIP AND OTHER COMMUNITY OFFICIALS AND TO THE GENERAL PUBLIC. A SUBSEQUENT TRAINING PROGRAM ON FIGHTING CHEMICAL FIRES SHOULD ALSO BE ESTABLISHED."

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ALTHOUGH EPA HAS INDICATED IT WILL BE RESPONSIVE TO FIRE FIGHTERS RESPONDING TO EMERGENCIES AT SUPERFUND SITES, THERE ARE MANY OTHER TIMES THAT FIRE FIGHTERS MUST CONFRONT SIMILAR SITUATIONS WITHOUT THE RECOURSE OF ASSISTANCE FROM SUPERFUND.

FOR EXAMPLE, THE IAFF WORKED WITH NIOSH FOLLOWING AN EXPLOSION AND FIRE WHICH DEMOLISHED THE BERN COLOR COMPANY IN POUGHKEEPSIE, NEW YORK IN JANUARY, 1984. NIOSH ANALYZED THE PROTECTIVE CLOTHING WORN BY THE FIRE FIGHTERS IN EXTINGUISHING THE BLAZE AT THE PLANT WHICH STORED LARGE NUMBERS OF CHEMICALS IN ORDER TO MANUFACTURE DYES. NIOSH FOUND THAT MANY OF THE PROTECTIVE GARMENTS THEY ANALYZED WERE PERFORATED BY ACID BURNS AND WERE CONTAMINATED WITH THE CHEMICALS STORED IN THE PLANT. NIOSH ESTIMATED THAT IT WOULD BE MORE EXPENSIVE TO DECONTAMINATE THE PROTECTIVE CLOTHING THAN PURCHASE NEW CLOTHING.

IN TOO MANY INSTANCES, FIRE FIGHTERS ARE SIMPLY UNAWARE THAT THE PROTECTIVE CLOTHING THEY ARE WEARING IS EVEN CONTAMINATED. IN OTHER CASES, MUNICIPALITIES CAN NOT AFFORD TO REPLACE THE CONTAMINATED CLOTHING. IT IS NOT INCONCEIVABLE THAT WHEN TRYING TO CLEAN THE PROTECTIVE CLOTHING THROUGH NORMAL WASHING WITH SOAP AND WATER, THE STATION UNIFORM THE FIRE FIGHTER IS WEARING CAN BECOME CONTAMINATED. THIS VERY SAME STATION UNIFORM THAT IS TAKEN HOME AND PLACED IN THE WASHING MACHINE WITH THE REST OF THE FIRE FIGHTER FAMILY'S CLOTHING.

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ANOTHER PROBLEM IS THE TOXIC NATURE OF COMBUSTION BYPRODUCTS. FOR EXAMPLE, THERE HAVE BEEN SEVERAL FIRES INVOLVING POLYCHLORINATED BIPHENYLS (PCBs) IN SAN FRANCISCO, CALIFORNIA, MIAMI AND JACKSONVILLE, FLORIDA, CHICAGO, ILLINOIS AND MADISON, OHIO IN WHICH THE IAFF AND NIOSH HAVE INITIATED ACTION TO EVALUATE THE HEALTH HAZARDS POSED TO FIRE FIGHTERS. THE DOCUMENTATION RESULTING FROM THESE FIRES AND OTHER INCIDENTS RAISE AN INTERESTING PROBLEM THAT HAS NOT BEEN ADEQUATELY ADDRESSED. THAT IS, AT HIGH TEMPERATURE, PCBs FORM OTHER EXTREMELY HAZARDOUS SUBSTANCES SUCH AS POLYCHLORINATED DIOXINS AND POLYCHLORINATED FURANS.

FOLLOWING THE EXPLOSION AND FIRE OF JANUARY 29, 1984 AT THE AMERICAN ELECTRIC CORPORATION WAREHOUSE IN JACKSONVILLE, FLORIDA, OUR CONCERN WAS AGAIN THE FAILURE TO INFORM THE FIRE FIGHTERS OF POTENTIAL HEALTH HAZARDS BY FEDERAL PERSONNEL ON THE SCENE AND THE BLATANT DISREGARD FOR OBVIOUSLY UNSAFE ACTIONS BY NOT ONLY THE FIRE FIGHTERS BUT THE PRIVATE CLEAN-UP CONTRACTORS AND THE WORKERS THAT THEY HIRED FOR SITE MITIGATION. IT IS IMPORTANT THAT I BRIEFLY EXPLAIN WHAT THE POTENTIAL HEALTH RISKS WERE THAT RAISED OUR CONCERN.

AS I STATED THE FIRE INVOLVED THE BURNING OF PCBs. POLYCHLORINATED BIPHENYLS (PCBs) ARE A GROUP OF HEAVY, OILY, LIQUID ORGANIC CHEMICALS. PCBs, WHICH ARE CHEMICALLY INERT, NONFLAMMABLE, RESISTANT TO HEAT AND PRESSURE AND ELECTRICALLY NONCONDUCTING, ARE EXTREMELY ATTRACTIVE

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FOR INDUSTRIAL USES, ESPECIALLY AS DIELECTRIC FLUIDS. PCBs ARE FOUND WHEREVER THERE ARE TRANSFORMERS OR CAPACITORS. THESE CAN RANGE FROM ELECTRICAL TRANSFORMERS IN BUILDINGS AND AT UTILITY COMPANY FACILITIES TO CAPACITORS IN TELEVISION SETS, FLUORESCENT LIGHTS AND HOME AIR CONDITIONERS. ANY TRANSFORMER OR CAPACITOR CONTAINING AN OILY LIQUID OR A WHITE OR YELLOWISH SOLID IS LIKELY TO CONTAIN PCBs. PCBs ARE ALSO USED AS AN ADDITIVE FOR EXTREME PRESSURE LUBRICANTS (E.G., HYDRAULIC SYSTEMS, VACUUM PUMPS AND GAS TRANSMISSION TURBINES), AS A COATING FOR INVESTMENT CASTING MOLDS IN FOUNDRIES AND IN CARBONLESS COPYING PAPERS.

ALTHOUGH PCB PRODUCTION WAS RESTRICTED IN 1971 AND BANNED BY THE ENVIRONMENTAL PROTECTION AGENCY IN 1977, EQUIPMENT USING PCBs IS STILL IN WIDESPREAD USE.

PCBs ENTER THE BODY THROUGH INHALATION OF AIR CONTAMINATED WITH VAPORS, MISTS OR PARTICULATES CONTAINING PCBs. THEY CAN ALSO ENTER THROUGH THE SKIN OR EYE CONTACT WITH MATERIALS CONTAINING PCBs AND/OR BY SWALLOWING FOOD OR OTHER MATERIALS CONTAMINATED WITH PCBs. FOR EXAMPLE, PCBs CAN READILY PENETRATE THE NEOPRENE VAPOR BARRIER COMMONLY USED IN FIRE FIGHTER PROTECTIVE CLOTHING. ONCE ABSORBED INTO THE BODY, THEY TEND TO SETTLE IN THE LIVER AND FAT CELLS.

PCBs ARE SUSPECTED TO BE ASSOCIATED WITH LIVER AND PANCREAS CANCER IN

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HUMANS. PCB EXPOSURE HAS ALSO BEEN ASSOCIATED WITH DECREASED SPERM COUNT, IMPOTENCE AND OTHER REPRODUCTIVE PROBLEMS; DAMAGE TO THE NERVOUS SYSTEM CAUSING TREMORS; AND LIVER DAMAGE.

FEW CHEMICALS HAVE RECEIVED MORE WIDESPREAD NOTORIETY THAN HAVE CHLORINATED DIBENZODIOXINS OR CHLORINATED DIBENZOFURANS. THESE CHEMICALS ARE THE MOST TOXIC CHEMICALS MADE BY MAN. THUS WHEN AN INTENSE FIRE INVOLVING CHLORINATED HYDROCARBONS—SUCH AS PCBs—OCCURS ONE OF THE INITIAL CONCERNS MUST BE THE POTENTIAL FORMATION OF EITHER DIOXINS AND FURANS. OBVIOUSLY, BY THE PICTURES I AM ABOUT TO DISPLAY SUCH WAS NOT THE CASE IN JACKSONVILLE. FIRE FIGHTERS WERE NOT INFORMED ABOUT THE POTENTIAL TOXIC EFFECTS, UNTIL WE INTERVENED. ADDITIONALLY, THE TEMPORARY WORKERS INVOLVED IN THE CLEAN-UP WERE NOT TRAINED TO THE EXTENT—IF AT ALL—REQUIRED FOR THE POTENTIAL EXPOSURE, NOR WERE THEY PROVIDED PROPER RESPIRATORY EQUIPMENT AND PROPER PROTECTIVE CLOTHING.

FOR THE COMMITTEE'S INFORMATION, WE HAVE ENCLOSED A COPY OF THE INTERIM REPORT FROM THIS INVESTIGATION. WE WOULD BE HAPPY TO SUPPLY THE COMMITTEE WITH THE FINAL REPORT UPON ITS COMPLETION OR ANY OTHER INFORMATION REGARDING OUR TESTIMONY TODAY.

UNFORTUNATELY, WE ARE UNAWARE OF THE COMBUSTION BYPRODUCTS OF THE MAJORITY OF THE OTHER MATERIALS ENTERING THE MARKETPLACE EVERY HOUR

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AT AN ASTOUNDING RATE. IN SOME CASES, THE BURNING OF A WHAT IS ASSUMED TO BE A MATERIAL WITH LITTLE OR NO HEALTH HAZARD, MAY BE CREATING A NEW AND EXTREMELY TOXIC SUBSTANCE.

THE RESULTS ARE SEEN IN THE NUMBER OF DEATHS, INJURIES AND ILLNESSES REPORTED IN THE FIRE FIGHTING PROFESSION. THE COSTS OF MEDICAL CARE, WORKER'S COMPENSATION AND DISABILITY PAYMENTS MUST BE PAID BY THE TAXPAYER. INDEED, I'M AFRAID THE SITUATION MAY ONLY WORSEN, SINCE MODERN TECHNOLOGY HAS PROVEN CAPABLE OF PRODUCING NEW SUBSTANCES FASTER THAN SCIENCE CAN DETERMINE THEIR TOXIC EFFECTS.

THESE INCIDENTS POINT OUT THE NEED FOR EXTENSIVE RESEARCH TO BE PERFORMED IN THE AREA OF DEVELOPING CHEMICAL PROTECTIVE CLOTHING, DECONTAMINATION PROCEDURES, COMBUSTION BYPRODUCTS, AND ACUTE AND CHRONIC MEDICAL SURVEILLANCE PROGRAMS AND ADEQUATE TRAINING PROGRAMS FOR FIRE FIGHTERS.

IN CONCLUSION, I WOULD LIKE TO THANK THE COMMITTEE FOR THE OPPORTUNITY TO ADDRESS THE DISREGARD FOR FIRE FIGHTERS, AS WELL AS OTHER WORKERS, AT TOXIC WASTE SITES BY THE FEDERAL GOVERNMENT, INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION AND THE ENVIRONMENTAL PROTECTION AGENCY. WE CERTAINLY BELIEVE THAT THIS CONTINUAL INACTION TO PROTECT WORKERS IS CRIMINAL. WE COMMEND THE ACTION OF THIS

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COMMITTEE THROUGH SUCH OVERSIGHT HEARING IN ASSISTING TO ASSURE THAT THOSE GOVERNMENTAL AGENCIES RESPONSIBLE FOR THE HEALTH AND SAFETY OF THIS NATION'S WORKFORCE CARRY OUT THEIR RESPECTIVE MANDATE.

THANK YOU.

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APPENDIX I

THE ELIZABETH, NEW JERSEY CHEMICAL CONTROL FIRE

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTER FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
CINCINNATI, OHIO 45226

INTERIM REPORT #1
HEALTH HAZARD EVALUATION PROJECT NO.
HE 80-118
CHEMICAL DUMP FIRE
ELIZABETH, NEW JERSEY

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RESEARCH

JUNE 1980

I. INTRODUCTION/BACKGROUND STATEMENT OF REQUEST

On April 24, 1980 the Hazard Evaluations and Technical Assistance Branch of NIOSH received a telephone request from Mr. Richard Duffy, of the International Association of Firefighters, requesting a health hazard evaluation of firefighter's exposures at a chemical dump fire which had occurred earlier that week in Elizabeth, New Jersey. Two medical investigators from NIOSH arrived in Elizabeth the next day, and after a preliminary assessment of the situtation, determined that medical testing of the exposed firefighters was necessary. This medical testing was done the following week. This report includes an initial tabulation of the results of this testing. However, a more complete analysis to determine the relationship between adverse effects found on this testing and exposure at the fire is currently underway.

II. BACKGROUND

On April 21, 1980 a large fire occurred at a chemical dump in Elizabeth, New Jersey. The fire lasted throughout that night and into the following day. The fire was fought by the Elizabeth, New Jersey firefighters with the assistance of firefighters from neighboring areas. Many police and other groups were present at the fire and had heavy exposure to the smoke from the fire. The lack of proper respiratory protection for these firefighters and other personnel and the possibility of serious health effects from chemical exposures were the basis for concern on the part of the firefighters. Although many personnel exposed at the fire had sought medical care and a few were hospitalized, a limited followup of these people and others by the New Jersey Health Department had not found evidence of serious health effects (e.g., later hospitalizations, persistent symptoms, etc).

The exposures at this chemical dump fire are uncertain. The site was being inventoried and most of the known materials had already been taken away. Approximately 40,000 drums were present at the dump at the time of the fire. Complete results are not yet available on the environmental sampling done on site by NIOSH and other agencies .

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V. DISCUSSION

The proportion of subjects that reported acute symptoms is considerable, and a number of these subjects had symptoms that persisted at the time of examination. The proportion of subjects with abnormal blood tests is also high, although no evidence of clinically apparent blood or liver disease has been reported. Any interpretation of these results must be cautious until a more complete analysis is done and better exposure information is obtained.

To ascertain the significance of the numbers of subjects with symptoms and indicators of impaired health, we will attempt to estimate duration and intensity of exposure. In future reports, we will report such attempts so that we may correlate prevalence, characteristics and severity of symptoms results of blood tests, and results of spirometry to duration and intensity of exposure.

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HE 80-118
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JM/rb

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a This category comprises a Chaplain, a Mayor, and a Mechanic.

1 Numbers of subjects represented in this tabulation are different from numbers of subjects interviewed due to incomplete data. The number for each occupation is:

Fire Fighter(255), Fire Investigator (7), Police (93), Paramedic (18), Other (3), and All (376).

2 A subject is included in this tabulation if within that subject's spirometric test results of the following statements are found to be true.

FEV_1 Percentage of Standard <80

FVC Percentage of Standard <80

FEV_1/FVC <0.7

3 A subject is included in this tabulation if within that subject's blood test results any of the following statements are found to be true.

1.70 mg/dl < Total Bilirubin
0.30 mg/dl <Direct Bilirubin
70.0 iu/l < Transaminase, SGO
70.0 iu/l < Transaminase, SGP
50.0 iu/l <Alkaline phosphatase
40.0 units/l <G-Glutamyl-transpeptidase

4 A subject is included in this tabulation if within that subject's blood test results, any of the following statements are found to be true.

11.6 thous./cu.mm <WBC or <4.00 thous./cu. mm
6.00 mil./cu. mm <RBC or <4.00 mil./cu mm
18.5 gm/dl <HGB or <10.5 gm/dl
52.0 percent <HCT or <35.0 percent
8330/cu. mm <Polymorphonuclear cells or <1650/cu. mm
3581/cu. mm <Lymphocytes or <1049/cu. mm

5 Symptoms include wheezing; cough; shortness of breath; nose and/or throat irritation; any kind of skin rash or disorder; any numbness or tingling in hands or face; and dizziness or nausea.

6 Symptoms include diarrhea or loose stool in addition to those mentioned above.

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTER FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
CINCINNATI, OHIO 45226

INTERIM REPORT #2
HEALTH HAZARD EVALUATION PROJECT NO.
HE 80-118

CHEMICAL CONTROL FACILITY
ELIZABETH, NEW JERSEY

OCTOBER 1980

I. Introduction

On April 21, 1980 a large fire occurred at a chemical dump clean-up site in Elizabeth, New Jersey. The fire lasted for several hours into the next day. Approximately 400 firemen, policemen, and other emergency workers from Elizabeth and surrounding areas were involved in fighting this fire. The International Association of Fire Fighters requested that NIOSH evaluate the possible adverse health effects of fire fighters' exposures to toxic fumes and smoke at this fire. NIOSH responded the next day with a medical and industrial hygiene team and the following week performed medical screening on over 300 of the workers present at the fire.

II. Background

Chemical Control

Elizabeth, New Jersey was a hazardous waste disposal facility that was taken over by the State of New Jersey in March 1978. Since that time, a clean-up of the site had been undertaken, and approximately 10,000 of the 50,000 drums of chemical waste had been inventoried and removed from the site. The contents of the drums remaining at the time of the fire was uncertain, but information from environmental sampling after the fire has not found any general contamination of the site with extremely toxic wastes such as pesticides and dioxins. This information was not known at the time of the medical screening and the possibility of fire fighter exposure to very toxic substances was one of the reasons for the medical screening program. Available information does, however, indicate potential fire fighter exposure to various solvents in addition to the particulate and other chemicals expected to be found in any fire.

III. Methods

Efforts were made to include in the medical screening each group working at the fire scene and who had significant exposure to smoke and fumes from the fire. Each worker participating had the following procedures done:

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a) Questionnaire: A trained interviewer questioned each participant about exposure at the fire, symptoms, subsequent medical care, and personal factors that might effect the questionnaire or test results.

b) Pulmonary Function Testing: Each participant had pulmonary function tests done by a trained technician. These tests included Forced Vital Capacity (FVC), a test of lung volumes. Abnormal results would be expected in someone with silicosis, asbestosis, or other fibrotic lung diseases. The tests also included Forced Expiratory Volume in one second (FEV), the ratio of FEV to FVC, and Mean Mid Expiratory Flow (MMEF) which measures the flow of air out of lungs. Abnormal results on the tests might be expected in obstructive lung diseases such as bronchitis, asthma, or emphysema.

c) Blood Tests: Blood was drawn for several tests, most importantly for liver function tests including SGOT, SGPT, GGTP, Alkaline Phosphatase, and Total and Direct Bilirubin. These analyses were done at Metpath, Inc., New Jersey, and reported using age specific normal results.

IV. Results

With the excellent cooperation of the fire, police, and other public officials, over 300 workers were screened. Although a precise participation rate is not available, this excellent cooperation and the wide publicity about the fire and the screening suggest that the participation rate was quite high. There is no indication that a significant number of workers were missed due to serious illness or hospitalization.

Table I presents demographic data on the participating groups and shows the number participating by occupational group. The fire fighter group includes both those from Elizabeth and those from surrounding areas who assisted at the fire. As can be seen in Table II, most of the workers spent long hours at the fire site. There was an inadequate number of respirators available for the number of personnel needed at the fire. Only 9 of the 234 fire fighters were able to use a respirator at all times while at the fire, and 147 fire fighters did not use a respirator at all while fighting the fire.

A considerable percentage of the fire fighters and other workers at the fire were still experiencing some symptoms more than 6 hours after leaving the fire (Table III) and even 7 to 10 days later at the time of the medical screening (Table IV). Nose or throat irritation was the most prevalent symptom with 68% of the fire fighters complaining of that more than 6 hours after the fire and 35% by the time of the medical interviews. Respiratory symptoms (wheezing, shortness of breath, and cough) were also prevalent. The skin rashes reported appeared to be mainly skin irritation but some were chemical burns from contact with chemicals at the dump site. Twenty-five percent of the fire fighters and fifteen percent of the police had sought medical care for symptoms related to their exposures.

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As compared to other workers exposed at the fire, the fire fighters had a significantly greater prevalence of reported nose or throat irritation ($p<.05$) and wheezing ($p<.01$) more than six hours after the fire. These significant differences also were found for these same two symptoms as reported at the time of the medical screening. This higher prevalence of symptoms in the fire fighters would be expected from their greater exposure to the irritating fumes and smoke from the fire. Some other exposure variables drawn from the questionnaire (hours spent at the fire, respirator use, time spent in dense smoke) showed a weak relationship to the prevalence of symptoms. However, these relationships were not strong enough to identify any group of workers at the fire as being at especially high risk for later symptoms or health problems.

The liver function tests are reported in Table V. For individual tests the prevalence of abnormal results is generally low. The tests of acute liver injury (GGTP, SGPT) had a slightly higher prevalence of abnormalities. No consistent pattern in relation to occupational group was found. No other measure of exposure (time at fire, respirator use, etc.) or alcohol intake was found to be significantly related to the liver function test results. The abnormal test results probably are due to a combination of factors including other illnesses and stress from the fire fighting. The possibility that some of these abnormalities are due to individuals' exposure to hepatotoxic chemicals at the dump site cannnot be ruled out, but no pattern suggestive of general problems due to hepatotoxic exposures was found.

Tables VI, VII, and VIII present the data on chronic respiratory symptoms and pulmonary function testing. These data are limited to the fire fighters and police. Due to their chronic intermittent exposure to smoke and fumes, fire fighters are known to be at increased risk for the development of bronchitis and other pulmonary impairment. For this study, the test results on the fire fighters are being compared to the police who should be a comparable group of workers except for the fire fighters' exposure to smoke while fighting fire.

Another factor affecting these respiratory symptoms and pulmonary function data is cigarette smoking. Fire fighters more often reported a history of current or past cigarette smoking than did the police (Table VI). Therefore, in some of the subsequent analyses, the difference in smoking histories was controlled for. Both morning cough and morning phlegm production were more prevalent in the fire fighters. However, the difference was not statistically significant and was much less pronounced when adjusted for smoking and age differences.

The pulmonary function testing for the fire fighters and police are reported in Table VII by the number of abnormal results for the specific clinical tests. The fire fighters were found to have more abnormal tests indicative of obstructive lung disease (FEV and FEV/FEC). However, the difference was also much less pronounced when adjusted for differences in smoking histories.

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Table VIII presents an analysis of the pulmonary function data for each occupational group divided into smaller groups based on smoking histories (current, ex, or non-smoker). Each separate pulmonary function test is reported as compared to the predicted test result for the group. This takes into account other factors affecting the test results such as height and age. For each of the four tests analyzed, the expected relationship to cigarette smoking was found with current smokers having poorer lung function than the ex-smokers or nonsmokers. Both FEV/FVC as a percent of predicted and MMEF as percent predicted were also found to be significantly lower ($p<.05$ by ANOVA) for the fire fighters than for the police. These findings are suggestive that the fire fighters are at increased risk for the development of chronic pulmonary impairment.

V. Conclusions

Exposure while fighting the fire at the Chemical Control Facility in Elizabeth had a significant acute impact on the exposed workers. These workers had a high frequency of acute symptoms related to the fire with many of the symptoms persisting for over a week after the fire. Based on the liver function testing there does not appear to be a major general effect of liver damage from the fire exposure. Questions on chronic respiratory symptoms and the pulmonary function testing suggested that the fire fighters were at increased risk for the development of obstructive lung disease. This is more consistent with chronic exposure as a fire fighter than the acute effects of the Chemical Control fire. The full health impact of exposure at the fire cannot be assessed from this study, but no major outbreaks of serious illness or disability has been reported in these workers. NIOSH is currently planning a follow-up study to more fully assess any delayed or prolonged health effects and thus the need for any further follow-up.

VI. Recommendations

1. Steps should be taken to ensure that enough proper personal protective equipment is readily available for fire fighters of any future similar incidents. Procedures should be set up to quickly and safely clean fire equipment and clothing that may be potentially contaminated during fires at chemical dumps or industrial sites.

2. A regular medical screening program should be instituted for fire fighters. This should concentrate on the cardiac and pulmonary systems. It should include periodic assessment of cardiac and pulmonary functions through medical histories, physical examinations, pulmonary function testing, electrocardiograms, and chest x-rays.

VII. Future Actions

NIOSH is now implementing a questionnaire follow-up of the workers screened after the fire. Any delayed chronic illness or disability due to the fire will be better assessed after that is completed.

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Reported Submitted By:

James M. Melius, M.D.
Chief
Hazard Evaluations and
Technical Assistance Branch, NIOSH

Eric Jannerfeldt, M.D.
Medical Officer
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HE 80-118
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JPM/sk

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TABLE I

DEMOGRAPHIC DATA ON WORKERS EXPOSED
AT THE CHEMICAL CONTROL FIRE

ELIZABETH, NEW JERSEY
APRIL 1980

	OCCUPATION			
	Fire Fighter	Police	Paramedic	Fire Investigator
Number	234	94	18	8
Age Range	20-63	19-74	20-51	23-52
Median Age	40.5	32.4	29.3	34.6
Male	233	91	17	8
Race:				
White	220	88	16	6
Black	3	2	1	---
Hispanic	---	3	1	---
Unidentified	11	1	---	2

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TABLE II

EXPOSURE DATA ON WORKERS EXPOSED
AT THE CHEMICAL CONTROL FIRE

ELIZABETH, NEW JERSEY
APRIL 1980

	OCCUPATION			
	Fire Fighter	Police	Paramedic	Fire Investigator
Number	234	94	18	8
Number of Hours at Fire:				
Mean	9.7	8.4	11.8	4.9
Range	1-22	1-24	1-24	1-9
Respirator Use:				
All Times While At Fire	9	0	0	1
No Times While At Fire	147	94	18	5

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TABLE III

SYMPTOMS LASTING MORE THAN SIX HOURS
AFTER LEAVING THE SCENE OF THE FIRE

ELIZABETH CHEMICAL CONTROL FIRE
ELIZABETH, NEW JERSEY

APRIL 1980

	OCCUPATION							
	Fire Fighter		Police		Paramedic		Fire Investigator	
	No.	%	No.	%	No.	%	No.	%
Wheezing	48	21%	9	10%	2	11%	1	14%
Cough	86	37%	29	31%	6	33%	3	38%
Shortness of Breath	62	36%	14	15%	4	22%	2	25%
Nose/Throat Irritation	158	68%	49	52%	9	50%	2	25%
Skin Rash	65	28%	20	21%	3	17%	2	25%
Numbness/Tingling in Hands or Feet	41	18%	11	12%	1	6%	2	25%
Dizziness and/or Nausea	50	21%	15	16%	6	33%	0	---

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TABLE IV

SYMPTOMS PERSISTING AT THE TIME
OF THE MEDICAL INTERVIEW (7-10 DAYS)

ELIZABETH CHEMICAL CONTROL FIRE
ELIZABETH, NEW JERSEY

APRIL 1980

	OCCUPATION							
	Fire Fighter		Police		Paramedic		Fire Investigator	
	No.	%	No.	%	No.	%	No.	%
Wheezing	26	11%	9	10%	3	17%	1	13%
Cough	57	24%	20	21%	5	28%	2	25%
Shortness of Breath	39	17%	10	11%	3	17%	2	25%
Nose/Throat Irritation	83	35%	21	22%	5	20%	1	13%
Skin Rash	26	11%	2	2%	0	---	0	---
Numbness/Tingling	11	5%	2	2%	0	---	0	---
Dizziness or Nausea	10	4%	8	9%	2	11%	0	---

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TABLE V

LIVER FUNCTION BLOOD TESTS

ELIZABETH CHEMICAL CONTROL FIRE
ELIZABETH, NEW JERSEY

APRIL 1980

	OCCUPATION			
	Fire Fighter	Police	Paramedic	Fire Investigator
Total Bilirubin				
Median	.50	.51	.54	.57
No. Abnormal	0	3	0	0
% Abnormal	---	3%	---	---
Direct Bilirubin				
Median	.14	.15	.17	.17
No. Abnormal	0	4	0	0
% Abnormal	---	4%	---	---
SGOT				
Median	28	31	25.5	30
No. Abnormal	6	2	0	1
% Abnormal	3%	2%	---	14%
SGPT				
Median	31	36	26	35
No. Abnormal	10	4	0	1
% Abnormal	5%	4%	---	14%
Alkaline Phosphatase				
Median	31.5	32	29	24.5
No. Abnormal	10	3	0	0
% Abnormal	4%	3%	---	---
GGTP				
Median	18	17.5	11.5	21
No. Abnormal	11	7	1	1
% Abnormal	5%	8%	5%	14%

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TABLE VI

SMOKING HISTORIES AND CHRONIC RESPIRATORY SYMPTOMS

ELIZABETH CHEMICAL CONTROL FIRE
ELIZABETH, NEW JERSEY

APRIL 1980

	OCCUPATION			
	Fire Fighter		Policemen	
	No.	%	No.	%
Cigarette Smoking Status				
Current	83	38%	36	40%
Ex-Smoker	78	36%	17	18%
Non-Smoker	57	26%	39	41%
Chronic Respiratory Symptoms Before Fire				
Wheezing	9	4.1%	3	3.2%
Shortness of Breath When Hurrying or Walking Up a Slight Hill	16	7.3%	7	7.4%
Morning Cough	29	13.1%	7	7%
Morning Phlegm Production	18	7.8%	5	5.4%

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TABLE VII

CLINICAL PULMONARY FUNCTION DATA

ELIZABETH CHEMICAL CONTROL FIRE
ELIZABETH, NEW JERSEY

APRIL 1980

	OCCUPATION	
	Fire Fighter	Police
FEV_1,		
No. Abnormal	25	7
% Abnormal	11%	8%
FVC,		
No. Abnormal	11	7
% Abnormal	5%	8%
FEV_1/FVC,		
No. Abnormal	20	5
% Abnormal	9%	5%

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TABLE VIII

PULMONARY FUNCTION DATA
FIRE FIGHTERS VERSUS POLICE CONTROLLED FOR SMOKING

ELIZABETH CHEMICAL CONTROL FIRE
ELIZABETH, NEW JERSEY

APRIL 1980

	Smoking Status	FEV_1 % Predicted	FVC % Predicted	FEV_1/FVC % Predicted	MMEF % Predicted
Fire Fighters	Current	95.5%	97.6%	80.6%	75.4%
	Ex-Smoker	99.5%	101%	79.8%	79.6%
	Non-Smoker	105%	105%	80.4%	87.0%
Police	Current	95.8%	97.2%	81.4%	79.5%
	Ex-Smoker	97.1%	95.6%	80.2%	92.4%
	Non-Smoker	100%	98.0%	81.9%	92.5%

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October 1980

A few months ago you participated in a NIOSH study of fire fighters and police officers involved in the fire at the Chemical Control dumpsite in Elizabeth, New Jersey.

NIOSH is now undertaking a follow-up study of the participants. The purpose of this follow-up study is to determine if you still have symptoms or health complaints that may be associated with your exposure to the fire at Chemical Control and also to determine how you may have responded to and benefited from the NIOSH medical screening. This follow-up study is directed to all participants in the medical screening, irrespective of how closely you were exposed to the fire, or if you had any health complaints or symptoms at the time of the NIOSH medical screening.

Enclosed you will find a short questionnaire dealing with your current health status and how you responded to the NIOSH medical screening. I would greatly appreciate if you would take a few minutes and complete the questionnaire and then return it to me in the enclosed addressed and stamped envelope. Your answers and comments are very important and will be helpful to NIOSH in dealing with similar problems in the future.

Your participation is of course completely voluntary. However, I sincerely hope you will agree to provide us with the requested information which will remain strictly confidential.

If you have any questions concerning this study please do not hesitate to contact me or Dr. James M. Melius at the above address. We can also be reached by phone at (513) 684-2732.

Sincerely,

Eric Jannerfeldt, M.D.
Medical Officer
Medical Section
Hazard Evaluations and Technical Assistance Branch
Division of Surveillance, Hazard Evaluations and Field Studies

2 Enclosures

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HHE 80-118

NIOSH

FOLLOW-UP OF PARTICIPANTS IN NIOSH MEDICAL STUDY IN ELIZABETH, NEW JERSEY

U. S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service/Center for Disease Control

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1. IN THE LAST MONTH, HAVE YOU REGULARLY EXPERIENCED ANY OF THE FOLLOWING RESPIRATORY SYMPTOMS?

	CIRCLE APPROPRIATE ANSWER	
WHEEZING	Yes	No
SHORTNESS OF BREATH WHEN HURRYING ON THE LEVEL OR WALKING UP A SLIGHT HILL	Yes	No
COUGH FIRST THING IN THE MORNING MOST DAYS	Yes	No
IF YOU ANSWER "YES" TO THE QUESTION ABOVE, DO YOU USUALLY BRING UP PHLEGM WHEN YOU COUGH?	Yes	No

2. SINCE THE FIRE AT CHEMICAL CONTROL, HAVE YOU DEVELOPED ANY NEW SKIN DISORDERS? Yes No

IF YOU ANSWER "YES" TO THE QUESTION ABOVE, PLEASE DESCRIBE THE COMPLAINT OR DISORDER.

_____

_____

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CIRCLE APPROPRIATE ANSWER

8. SINCE THE FIRE AT CHEMICAL CONTROL, HAVE YOU DEVELOPED ANY OTHER HEALTH PROBLEMS? Yes No

IF YOU ANSWER "YES" TO THE QUESTION ABOVE, PLEASE DESCRIBE THE HEALTH PROBLEMS YOU ARE EXPERIENCING AND HOW OFTEN YOU HAVE THEM.

Health Problem	Frequency
_____	Seldom Sometimes Always
_____	Seldom Sometimes Always
_____	Seldom Sometimes Always
_____	Seldom Sometimes Always
_____	Seldom Sometimes Always

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CIRCLE APPROPRIATE ANSWER

4. ARE YOU CURRENTLY USING ANY KIND OF MEDICATION, PRESCRIPTION OR NON-PRESCRIPTION, REGULARLY? Yes No

IF YOU ANSWER "YES" TO THE ABOVE QUESTION, PLEASE STATE THE NAME OF THE MEDICATION.

_____

_____

_____

NIOSH SENT LETTERS TO ALL PARTICIPANTS IN THE MEDICAL SCREENING WITH THE RESULTS OF THE BLOOD TESTS AND BREATHING TESTS. THE FOLLOWING QUESTIONS DEAL WITH THE RESULTS OF YOUR TESTS.

5. DID THE LETTER YOU RECEIVED CONTAIN RECOMMENDATIONS CONCERNING MEDICAL FOLLOW-UP OF ABNORMAL BLOOD TESTS AND/OR BREATHING TESTS? Yes No

6. HAVE YOU CONSULTED A PHYSICIAN SINCE YOU PARTICIPATED IN THE NIOSH MEDICAL SCREENING? Yes No

IF YOU ANSWER "YES" TO THE ABOVE QUESTION, PLEASE ANSWER THE FOLLOWING:

DID YOU SHOW THE PHYSICIAN THE RESULTS OF YOUR BLOOD TESTS AND/OR BREATHING TESTS? Yes No

DID THE PHYSICIAN TAKE ANOTHER BLOOD SAMPLE? Yes No

DID THE PHYSICIAN TAKE ANOTHER BREATHING TEST? Yes No

DID THE PHYSICIAN TELL YOU THAT YOU HAD A DISEASE OR DISORDER THAT SHOULD BE TREATED? Yes No

IF YES, COULD YOU BRIEFLY DESCRIBE THE DISEASE OR DISORDER.

_____

_____

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CIRCLE APPROPRIATE ANSWER

7. DO YOU CURRENTLY SMOKE: CIGARETTES — Yes / No

CIGARS — Yes / No

8. SINCE RECEIVING YOUR TEST RESULTS, HAVE YOU CHANGED YOUR SMOKING HABITS? — Yes / No

IF YOU HAVE CHANGED YOUR SMOKING HABITS, HOW WOULD YOU SAY THIS CHANGE HAS AFFECTED YOUR TOTAL TOBACCO CONSUMPTION? — Increased / Decreased / Not Changed

IF YOU HAVE CHANGED YOUR SMOKING HABITS, WAS THE CHANGE IN YOUR SMOKING HABITS DUE TO THE RESULTS OF YOUR TESTS AT THE NIOSH MEDICAL SCREENING? — Yes / No / Not Changed

9. SINCE RECEIVING YOUR TEST RESULTS, HAVE YOU CHANGED YOUR DIETARY HABITS? — Yes / No

IF YOU ANSWER "YES" TO THE ABOVE QUESTION, WAS THIS CHANGE A RESULT OF YOUR NIOSH MEDICAL SCREENING? — Yes / No

10. SINCE RECEIVING YOUR TEST RESULTS, HAVE YOU CHANGED YOUR WORK HABITS? (FOR INSTANCE, YOU MAY HAVE CHANGED THE WAY IN WHICH YOU USE RESPIRATORS OR OTHER PROTECTIVE EQUIPMENT). — Yes / No

IF YOU ANSWER "YES" TO THE ABOVE QUESTION, DO YOU NOW:

USE RESPIRATORS MORE FREQUENTLY? — Yes / No

USE OTHER PROTECTIVE EQUIPMENT MORE FREQUENTLY? — Yes / No

ARE THESE CHANGES IN YOUR WORK HABITS A RESULT OF THE NIOSH MEDICAL SCREENING? — Yes / No

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CIRCLE APPROPRIATE ANSWER

11. OVERALL, DO YOU CONSIDER THAT YOU BENEFITED FROM THE NIOSH MEDICAL SCREENING? Yes No

IF YOU ANSWER "YES" TO THE ABOVE QUESTION, COULD YOU PLEASE STATE IN WHAT WAY YOU THINK YOU BENEFITED.

PEACE OF MIND Yes No

DETECTION OF UNKNOWN DISORDER Yes No

INDUCED CHANGE IN LIFE HABITS OR WORK HABITS Yes No

OTHER (Please Specify) _____

_____

12. DO YOU CONSIDER THAT YOU EXPERIENCED ANY DISADVANTAGE FROM THE NIOSH MEDICAL SCREENING? Yes No

IF YOU ANSWER "YES" TO THE ABOVE QUESTION, COULD YOU PLEASE STATE WHAT YOU CONSIDER WERE THE DISADVANTAGES.

UNNECESSARY MEDICAL FOLLOW-UP Yes No

ANXIETY DUE TO TEST RESULTS Yes No

OTHER (Please Specify)_____

_____

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CIRCLE APPROPRIATE ANSWER

13. IF A SITUATION LIKE THE FIRE AT CHEMICAL CONTROL OCCURRED IN THE FUTURE, WOULD YOU CONSIDER IT IMPORTANT TO DO MEDICAL SCREENING OF EXPOSED PERSONS? Yes No

14. IF A SITUATION LIKE THE FIRE AT CHEMICAL CONTROL OCCURRED IN THE FUTURE AND YOU WERE EXPOSED, WOULD YOU BE WILLING TO PARTICIPATE IN THE SCREENING? Yes No

PLEASE USE THE SPACE BELOW FOR ADDITIONAL COMMENTS OR SUGGESTIONS.

THANK YOU FOR PARTICIPATING IN THIS FOLLOW-UP STUDY.

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APPENDIX II

THE SHELBY TOWNSHIP, MICHIGAN LDI FIRE

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1750 NEW YORK AVENUE, N.W., WASHINGTON, D.C. 20006
TELEPHONE NO. (202) 872-8414

October 25, 1983

Alfred K. [illegible]
Secretary Treasurer

The Honorable William D. Ruckelshaus
Administrator
U.S. Environmental Protection Agency
Suite 1200 West Tower
401 M Street, S.W.
Washington, D.C. 20460

Dear Mr. Ruckelshaus:

Over the past several years, a number of fires and explosions have occurred during hazardous materials incidents where EPA and/or the Coast Guard have responded and claimed jurisdictional responsibility. Examples of such incidents include the Chemical Control fire in Elizabeth, New Jersey in April, 1980, the Bern Color explosion in Poughkeepsie, New York in January, 1982 and the Liquid Disposal Incorporated (LDI) fire in Shelby Township, Michigan in June, 1983. At each of these incidents fire fighters responded and in the course of these responses, were exposed to hazardous materials and toxic products of combustion and their protective clothing and equipment were contaminated.

At each of the above incidents, the National Institute for Occupational Safety and Health, Center for Disease Control, was asked by the International Association of Fire Fighters to conduct a health hazard evaluation. Their investigation of the Chemical Control fire stressed the importance of post exposure medical examinations and long-term follow-up of exposed fire fighters, and established appropriate medical procedures. However, after a great deal of confusion was noted regarding decontamination of fire fighters protective clothing and equipment, we specifically asked NIOSH to address this additional issue after the Bern Color fire. NIOSH noted in their report that "NIOSH believes that decontaminating the fire fighters uniforms is impractical with existing technology and recommends that they be disposed of properly." Thus, we were suprised in June, 1983 when EPA and contractor's representatives at the LDI site and one of the contractor's Washington D.C. employees, who identified himself as an "EPA toxicologist," advised the fire fighters that medical exams were not required and that similar clothing and equipment contaminated with PCB-containing waste oil could be decontaminated by normal washing. Only after our Health and Safety Division staff contacted the EPA Emergency Response Operations staff in Washington D.C. was the matter resolved. Equipment was then properly decontaminated and/or replaced by EPA and medical exams were performed by CDC. However, for several days after the fire, the fire fighters who responded were not properly examined and were without any protective clothing or equipment and thus could not effectively respond to emergencies, presenting an obvious risk to themselves and the public.

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We believe that the LDI incident illustrates a very serious problem. Fire fighters who respond to hazardous materials incidents are trained to rescue personnel and extinguish fires. They and other municipal and local officials, including physicians, are not trained to evaluate toxic exposure and contamination. Thus, fire fighters are forced to rely on the advice of EPA personnel and contractors at the emergency sites for immediate direction. As we have noted above, the information afforded is not always correct. In addition, the responsibility for reimbursement in such situations is presently unclear. Without clear responsibility, we will continue to experience similar confusion after each such incident.

Thus, we ask that EPA establish policy that initiates standard operating procedures for EPA and contractors to provide immediate decontamination of fire fighters' equipment and replacement of fire fighters' protective clothing, in accordance with applicable Federal and state safety and health regulations, and that affords immediate medical examinations and follow-up by CDC personnel in accordance with established NIOSH procedures, at all hazardous materials incidents where federal jurisdictional authority is claimed. We hope that EPA will meet with our safety and health staff in the immediate future, so that such policy may be presented by your representatives at our John P. Redmond Foundation Safety and Health Symposium, December 4-8, 1983, in Toronto, Canada.

Thank you for your attention to this critical matter.

Sincerely,

John A. Gannon
President

JAG/JCS/cd

bcc: Steven Heare, Chief
EPA

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

RECEIVED
DEC 07 1983
INT'L ASSOC. OF FIRE FIGHTERS

DEC 2 1983

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

Mr. John A. Gannon
President
International Association of Fire Fighters
1750 New York Avenue, N.W.
Washington, D. C. 20006

Dear Mr. Gannon:

This is in response to your letter of October 25, 1983, to Mr. William D. Ruckelshaus, Administrator, Environmental Protection Agency (EPA), regarding medical examinations for fire fighters exposed to hazardous materials and decontamination or replacement of their equipment. In your letter you cite examples of how fire fighters have been treated differently at separate incidents, and urge that we adopt a consistent policy to cover incidents at which fire fighters respond.

I have reviewed the issues raised in your letter with my staff and the Centers for Disease Control (CDC) and I agree that standard operating procedures should be established to address these issues. I plan to initiate development of these procedures immediately. Although the details remain to be worked out, the procedures will provide for decontamination (or replacement if it is more cost-effective) of fire fighters equipment. This policy will be applicable to equipment contaminated responding to incidents funded under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).

The EPA staff has had some preliminary discussions with the CDC staff regarding medical exams for fire fighters responding to incidents. I have been informed that CDC and the National Institutes of Occupational Safety and Health (NIOSH) are developing an implementation protocol for these studies. Once a protocol is developed, it will be submitted to EPA for funding considerations. I also understand that NIOSH has been discussing this issue with the International Association of Fire Fighters in order to ensure that your needs are considered in the development of the health studies protocol.

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I hope this information will be of assistance to you. Mr. Kenneth E. Biglane will represent EPA at your meeting in Toronto in December and will be able to further discuss these issues with you.

Sincerely yours,

Lee M. Thomas
Assistant Administrator

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HETA- 83-326-1535
NOVEMBER 1984
LIQUID DISPOSAL INCORPORATED
SHELBY TOWNSHIP, MICHIGAN

NIOSH INVESTIGATOR:
Kern E. Anderson

I. Summary

On June 20, 1983 the National Institute for Occupational Safety and Health (NIOSH) received a request to evaluate possible health effects among firefighters following a fire that occurred on June 15,1983 at Liquid Disposal Incorporated (LDI), a storage site for waste oils, volatile and semivolatile wastes, located in a Detroit suburb. The request also asked NIOSH to advise fire officials on decontamination procedures for personal protective gear, clothing and equipment that may have been exposed to toxic chemicals during the fire.

On July 12-13, 1983 NIOSH surveyed firefighters and police officers involved with the fire using self-administerd medical questionnaires. Additionally, the Environmental Protection Agency (EPA) collected environmental samples following the fire that were analyzed for dibenzo-p-dioxins and dibenzofurans. These samples included the water used to decontaminate various firefighter gear and equipment, a composite sample of the waste oil lagoon, samples from two fly ash piles, samples of soil collected a few miles from the site, and background water and soil samples as controls.

Generally, firefighters and other personnel involved with the fire experienced only minor health effects associated with smoke and fumes. One firefighter was treated for smoke inhalation. There were no other major health problems, and none of the firefighters were hospitalized.

Of all the EPA samples, the compound of most concern was 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). TCDD was not detected in any of the samples submitted for analysis.

Although the rinse water used to wash some firefighter gear and equipment was analyzed and found totally negative for TCDD, the cost of analyzing all the clothing, gear and equipment far outweighed the cost of replacing the items. Thus, EPA authorized complete replacement of personal protective clothing, gear and equipment used at the fire.

On the basis of the data obtained during this investigation, it was concluded that there were no apparent serious health effects resulting from exposures to chemicals at the fire. It was further concluded that based upon the technology available, decontaminating the firefighters' clothing, gear and equipment was impractical and too costly. We agree with EPA's decision to replace the clothing, gear and equipment. Recommendations pertaining to on-going medical surveillance, care of work uniforms and fire fighting equipment, and an education program about toxic chemicals are presented in Section VII of this report.

KEYWORDS: SIC 9224 fire fighters, chemical fires, hazardous waste storage sites, chemical decontamination

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II. Introduction

On June 15, 1983, police and firefighters from three communities responded to a fire at Liquid Disposal Incorporated (LDI) - a hazardous waste storage site located in Shelby Township, Michigan - a suburb of Detroit. LDI was under the jurisdiction of the U.S. Environmental Protection Agency's (EPA) SUPERFUND at the time of the fire.

On June 20, 1983, the National Institute for Occupational Safety and Health (NIOSH) received a request from the International Association of Firefighters (IAFF) to evaluate possible health effects among firefighters who were at the LDI fire and to advise fire officials on procedures for cleaning personal protective gear, clothing and other firefighting equipment which may have become contaminated by chemical wastes during the fire.

On June 23, 1983, a NIOSH investigator met with fire and township officials from Shelby Township, along with representatives from Local 1338 of the IAFF and several firefighters who were at the scene of the fire. Preliminary information was obtained about the fire and the gear clothing and other firefighting equipment in question were examined. (The items had been placed in plastic trash bags and delivered to one of the fire department sub-stations near LDI where they were being stored, waiting for final disposition by EPA.) The NIOSH investigator also visited the LDI dump site and met with EPA's On-Scene-Coordinator (OSC) to obtain a list of chemicals known to be contained in the site and to discuss alternatives for dealing with the firefighters' gear clothing and equipment.

On July 12-13, 1983, NIOSH surveyed the firefighters and police officers involved with the fire, using self-administered questionnaires. The questionnaires solicited information to characterize exposures and subsequent symptoms experienced by individuals at the scene, as well as other pertinent epidemiologic data.

III. Background

A. The Dump Site

Liquid Disposal Incorporated began operating as a commercial incinerator for waste oils, volatile and semi-volatile wastes in 1968. The site is located on 6.8 acres of land in an area that has an automobile junkyard adjacent to the site, a mountainous trash dump a short distance away and a major landfill site nearby as well. The northern boundary of LDI is adjacent to the Rochester-Utica State Game and Recreation Area with the Clinton River one quarter mile away. Approximately 1,000 people living within one mile of LDI, are served by well water, with the closest well located within one quarter mile of the site. The now abandoned site formerly consisted of: two lagoons (a deep waste oil lagoon with a thick sludge bed and a relatively shallow settling pond called a "scrubber" lagoon) a staged drum storage area (where

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approximately 1,000 waste filled drums were stacked), a centrally located incinerator and pit containing runoff water from the entire site and twelve large volume (17,300-50,000 gallons) storage tanks, eight of which are underground.

During its years of operation, LDI had numerous problems. Frequent seepage from the lagoons operating overcapacity threatened groundwater. Compromised structural integrity of the dike system presented constant threats of mass releases of wastes into the Clinton River, had the system failed. Constant complaints from nearby residents about obnoxious odors resulted in many violations of air quality standards and the site has had three major fires. Since 1982, major problems at LDI required three emergency actions by EPA and forced the closing of the site by the Michigan Department of Natural Resources (MDNR). The first incident occurred on January 13, 1982 when a release of hydrogen sulfide gas killed two workers. (on January 14, 1982 MDNR ordered the facility closed.) A second emergency recovery action was required in April 1982, when PCB-contaminated oil was released into the Rochester-Utica State Game and Recreation Area. The third emergency action was initiated in July 1982 to stabilize hazards on-site from high lagoon levels and open flammable tanks. The sequence of events and the constant threats to human health and the environment earned LDI, MDNR's designation as the "second" worst hazardous waste site in the state of Michigan and was ranked 26th by EPA for remedial actions. EPA and MDNR maintained site surveillance over the next several months pending further cleanup. In the early spring of 1983, accumulation of water from heavy rains along with further deterioration of dikes and leaking drums prompted EPA to initiate an "immediate removal action" to stabilize the site. Work was completed on the site in the fall of 1983. The two lagoons were dewatered, solidified and "capped." Deteriorating drums were "overpacked" then removed from the site with the rest of the drums. The cost of the stabilization project was approximately $2 million. The site is currently waiting for remedial action by EPA

B. The Fire

Beginning on June 3, 1983, feasibility tests were conducted by EPA on the sludge in the waste oil lagoon to determine if lime solidification would be an appropriate process to convert the liquid wastes into solid form. On June 8, 1983, larger scale testing of the sludge produced acceptable results. Thus, on June 13, 1983 EPA began adding lime directly to the waste oil lagoon. This process produced large white clouds of lime dust and subsequent complaints from nearby residents. On June 14, 1983, EPA began injecting the lime beneath the surface of the lagoon in an effort to minimize the large emissions of lime dust. This procedure seemed to be effective, so on June 15, 1983, subsurface injection of lime continued - without incident throughout the morning. At approximately 12:40 p.m., lime injection was abruptly

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ordered to a halt by the OSC when a large white cloud was seen coming off the lagoon. An MDNR air quality engineer arrived shortly thereafter and informed the OSC that odors and lime dust were evident in a location approximately one mile from the site. The OSC and the engineer went to investigate that area as well as other locations nearby, however, the cloud had disappeared. Shortly after they returned to LDI (at approximately 1:15 p.m.), the white smoke coming off the lagoon turned black and the lagoon was observed to be on fire, apparently the result of an exothermic reaction. The blaze grew in size and the fire department was summoned. When firefighters arrived, the OSC advised them of the lagoon contents: waste oils, benzene, toluene, xylene and no PCBs.

The OSC established a "hot line" approximately 100 yards from the lagoon, where firefighters set up their equipment. Firefighters entering the area beyond this point were required to wear Self-contained Breathing Apparatus (SCBAs). The OSC and a fire official monitored the "hot line" to ensure that no one entered the area without a SCBA.

Although most of the constituents in the lagoon were adequately known, there was the question of unknown chemical constituents and the potential of hazards from the smoke and fumes from the fire. Although the smoke traveled up and over the recreation area in a relatively vertical path, it still was traveling in the general direction of nearby residential areas. As a precautionary measure, a voluntary evacuation of nearby residents was initiated and subsequently, the entire area surrounding LDI was sealed-off. Firefighters suppressed the fire using foam and at approximately 3:00 p.m., with the flames out, the Fire Chief declared the fire under control and the evacuation was cancelled. One firefighter was treated for smoke inhalation at a nearby hospital when his air tank malfunctioned at the lagoon. There were no other casualties although several firefighters were examined at the hospital after the fire.

IV. EVALUATION DESIGN AND METHODS

A. Environmental

NIOSH was asked to advise fire officials about procedures for cleaning personal protective gear, clothing and other firefighting equipment which may have become contaminated by chemical wastes during the fire. Appropriate methods of decontamination must be based upon the nature of the chemicals the gear, clothing and equipment were exposed to, the degree of contamination or compromised integrity of the item, availability and efficacy of known decontamination methods and the costs of decontaminating methods versus replacing the gear, clothing and equipment.

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Based upon exposure information available at the time and due to the large number of chemicals that were involved, EPA authorized complete replacement of personal protective clothing ("turnout" coats, boots, gloves and helmets), some air masks and webbing and straps for SCBAs and some fire hoses.

EPA also collected the following environmental samples subsequent to the fire:

samples of water, used to wash and decontaminate some of the firefighting equipment

a composite sample of the waste oil lagoon

off-site samples of soil, collected a few miles from LDI

samples from the two fly ash piles and

background water and soil samples to serve as controls.

These samples were analyzed for tetra through octachlorinated dibenzo-p-dioxins and dibenzofurans

B. Medical

Self-administered medical questionnaires were distributed to thirty-five firefighters and six police officers involved with the LDI fire to determine the extent of ill health effects suffered by the those individuals.

V. EVALUATION CRITERIA

A. Environmental Criteria

As a guide to the evaluation of the hazards posed by workplace exposures, NIOSH field staff employ environmental evaluation criteria for assessment of a number of chemical and physical agents. These criteria are intended to suggest levels of exposure to which most workers may be exposed up to 10 hours per day, 40 hours per week for a working lifetime without experiencing adverse health effects. It is, however, important to note that not all workers will be protected from adverse health effects if their exposures are maintained below these levels. A small percentage may experience adverse health effects because of individual susceptibility, a pre-existing medical condition, and/or a hypersensitivity (allergy).

In addition, some hazardous substances may act in combination with other workplace exposures, the general environment, or with medications or personal habits of the worker to produce health effects even if the occupational exposures are controlled at the level set by the evaluation criterion. These combined effects are

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often not considered in the evaluation criteria. Also, some substances are absorbed by direct contact with the skin and mucous membranes, and thus potentially increase the overall exposure. Finally, evaluation criteria may change over the years as new information on the toxic effects of an agent become available.

The primary sources of environmental evaluation criteria for the workplace are: 1) NIOSH Criteria Documents and recommendations, 2) the American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Values (TLV's), and 3) the U.S. Department of Labor (OSHA) occupational health standards. Often, the NIOSH recommendations and ACGIH TLV's are lower than the corresponding OSHA standards. Both NIOSH recommendations and ACGIH TLV's usually are based on more recent information than are the OSHA standards. The OSHA standards also may be required to take into account the feasibility of controlling exposures in various industries where the agents are used; the NIOSH-recommended standards, by contrast, are based primarily on concerns relating to the prevention of occupational disease. In evaluating the exposure levels and the recommendations for reducing these levels found in this report, it should be noted that industry is legally required to meet only those levels specified by an OSHA standard.

A time-weighted average (TWA) exposure refers to the average airborne concentration of a substance during a normal 8- to 10-hour workday. Some substances have recommended short-term exposure limits or ceiling values which are intended to supplement the TWA where there are recognized toxic effects from high short-term exposures.

VI. RESULTS

A. Environmental

Results of EPA's samples analyzed for tetra through octachlorinated dibenzo-p-dioxins and dibenzofurans are presented in Table I. The compound of most concern, 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) was not detected in any of the samples submitted for analysis. The limits of detection in these analyses ranged from 0.004-0.001 parts per billion (ppb) depending upon the detection limits calculated for individual tests.

NIOSH obtained a list from EPA of the chemicals known to be present in both the scrubber and waste oil lagoons as of May 1983. The composition of the "scrubber" lagoon was described as; waste water, oil and suspended sediments containing toluene (280 ug/l), xylene (490 ug/l), 1,1,1,-trichloroethane (260 ug/l), trichloroethylene (160 u g/l), perchloroethylene (55 ug/l), oil (160 ug/l), cadmium (120 ug/l), chromium (90 ug/l), copper (890 ug/l), nickel (800 ug/l), lead (310 ug/l), zinc (210 ug/l), and iron (4,800 ug/l). The composition of the waste oil lagoon was described as oil, water and sediments containing; toluene (95,000 ug/l), xylene (5,000

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ug/l), styrene (7,800 ug/l), 1,1,1,-trichloroethane (34,000 ug/l), trichloroethylene (15,000 ug/l), perchloroethylene (3,500 ug/l), polychlorinated biphenyl in water (1 ppm), polychlorinated biphenyl in oil (190 ppm), cadmium (5,000 ug/l), chromium (94,000 ug/l), copper (33,000 ug/l), zinc (87,000 ug/l), iron (530,000 ug/l), phenols (3,200 mg/kg) and numerous other organics. There may have been other unknown chemicals present in the waste oil lagoon and new chemicals may have been formed by the interaction of chemicals and the heat of the fire.

Although the firefighters protective gear, clothing and equipment were potentially exposed to many substances, visual examination of some boots, gloves and turnout coats revealed that dried mud and lime dust were the only obvious contaminants. Stains from oils or other liquids were not apparent and the items appeared to be free of holes and other damage that could compromise their protective features.

Although the samples of water used to rinse the equipment after decontamination procedures were entirely negative for TCDDs, EPA authorized replacement of the protective gear, clothing and equipment when it became apparent that the costs of analyzing all of the items for so many compounds would greatly exceed the cost of replacing them.

B. Medical

Self-administered medical questionnaires were obtained for forty of the forty-one individuals involved with the LDI fire. Generally, both the firefighters and the police officers who were at the scene of the fire experienced only minor health effects from exposures associated with smoke and fumes. Significant exposure to smoke and fumes was documented by one firefighter whose air tank malfunctioned at the burning lagoon. This individual was treated for smoke inhalation at a nearby hospital and released. Nose and throat irritation lasting more than six hours after the fire was reported by fifteen individuals, Cough and shortness of breath were reported by eight individuals and five individuals respectively. Nine individuals reported that liquid wastes or sludge penetrated their clothing resulting in prolonged skin contact. Four of these individuals reported experiencing skin irritation or a slight rash. One person, who was not at the fire, reported experiencing a slight rash on his hands after washing some of the air tanks that were used during the fire. After the fire, twenty-five individuals sought medical attention at the emergency room of a nearby hospital. Within this group, nine persons reported no symptoms at all and four persons reported nose and throat irritation as their only symptom. A history of smoking cigarettes was reported by twenty-nine persons, fifteen who currently still smoke. No other epidemiologic data were reported.

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VII. DISCUSSIONS AND CONCLUSIONS

The results of the investigation indicate that the individuals involved with the fire suppression activities at the LDI fire experienced only minor symptoms and irritations resulting from exposures during the fire. No one was hospitalized and with the exception of the one firefighter who was treated for smoke inhalation, none of the other firefighters required respiratory therapy. At the time of the medical survey, which was almost one month after the fire, prolonged health effects were not reported. Onset of delayed health effects would not expect to occur based upon the type of exposure and the minor acute symptoms reported. Exposure to liquid chemicals contained in the lagoon was minimal and exposure to smoke and fumes were minimized based upon the vertical ascending path of the smoke, its movement away from the firefighters and the use of breathing apparatus by firefighters at the burning lagoon. The minor skin irritations experienced by some of the firfighters was most likely attributable to skin contact with lime dust and residue.

The issues surrounding the replacement of the clothing, protective gear and equipment are very complicated and require some clarification. In the absence of specific decontamination procedures, each incident such as this, must be addressed separately. In the case of the LDI fire, decontamination of the clothing, protective gear and equipment was complicated by the large number of potential chemicals involved, the absence of rapid testing methods and the high cost of existing testing methods. When weighing the cost of decontamination procedures versus the cost of replacing the clothing, gear and equipment, it appears that from the cost effectiveness point of view, that EPA made an appropriate decision, by authorizing complete replacement. This decision, however, seemed to be interpreted by some individuals as EPA's agreement that the clothing, gear and equipment was, in fact contaminated and therefore unusable. This was not necessarily the case. Replacing the clothing, gear and equipment was authorized because of the excessive time and expense that would have been required to test for the large variety of chemicals known to be contained in the dump, the possibility of the existence or formation of unknown chemical compounds and the length of time firefighters would have had to rely upon backup (and possibly inferior) gear, while waiting for final judgement on their first line-gear. Nevertheless, many individuals expressed a great deal of concern that they might risk serious health effects later-on as a result of having been present at the LDI site during the fire and from continued use of gear and clothing used to suppress the fire. While the concern regarding exposures to hazardous wastes is understandable, it is not possible to predict long-term health outcomes from any of these exposures. Additionally, the precautionary measures implemented by the OSC and the Fire Chief (the establishment of the "hot-line" and required use of SCBA's) may have significantly reduced the opportunity for firefighters to have been exposed to toxic wastes.

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Concern and reactions regarding risk of exposure to hazardous wastes was not limited to the firefighters. In another incident related to the LDI fire, an employee of the township's water department was talking to a police officer at the intersection of the main road and the access road to LDI when he suffered what appeared to be a heart attack. Emergencey medical personnel took the employee to the emergency room of a nearby hospital. Moments after the person was taken into the emergency room, he was taken back outside on a stretcher by two attendants who removed all but his undershorts, then proceeded to wash the man down with cold water from a garden hose, before taking him back into the emergency room. Medical personnel,thinking the man posed some degree of risk to other individuals because he was "contaminated" from having been at LDI, authorized this procedure. Not only was this measure extreme, but probably unnecessary as well. The man had not been exposed to anything at the LDI site. Additionally, had contamination occurred, rinsing the man with cold water alone, may not have been sufficient to reduce this contamination.

VIII. RECOMMENDATIONS

1. A routine medical screening/surveillance program should be established for firefighters. This program should focus on periodic assessment of cardiac and pulmonary systems and include thorough medical histories, physical examinations, electrocardiograms, pulmonary function tests and chest X-rays when needed. (The hospital emergency room should only be used, when necessary, by firefighters who suffer immediate, acute symptoms from exposures during the course of suppressing a fire. The practice of routinely visiting the hospital emergency room by firefighters who are asymptomatic, should be discontinued unless specific chemical exposure or other information indicate the need for medical evaluation.)

2. Because many firefighters expressed concern about smoke and other substances on their work uniforms affecting family members, firefighters should launder and keep work uniforms at the fire station. Uniforms should be laundered routinely using a separate washer and dryer from the ones used to launder bed linens and towels. For those occasions when firefighters respond to fire alarms from their homes, a backup uniform should be kept at home.

3. Fire hoses and other fire fighting equipment should be cleaned routinely according to the manufacturer's recommendations. To minimize personal exposures from substances on the hoses or equipment and to minimize skin irritations from detergents used during the cleaning procedures, elbow or arm length rubber gloves can be worn.

4. Future consideration for replacing clothing, gear and equipment, believed to be contaminated by harmful chemicals should be based upon: evidence of contamination; damage, limiting or compromising the safety qualities of the clothing, gear or equipment; knowledge of the chemicals and efficacy of known decontamination methods; and the cost of decontamination procedures versus replacement of the articles.

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5. Because of the expressed concerns and questions regarding hazardous wastes, an education program about toxic chemicals should be established. The focus of this program should include how chemicals move through the environment, understanding how risks to human health occur, and a perspective on dump sites. This program should be made available to firefighters, police officers, health care personnel, township and other community officials and to the general public. A subsequent training program on fighting chemical fires should also be established.

IX. REFERENCES

1. Occupational Diseases: A Guide to Their Recognition. National Institute for Occupational Safety and Health. DHEW (NIOSH) Publication No. 77-181, June, 1977.

2. Casarett and Doull, Toxicology 2nd. Edition Macmillan Publishing Company, New York, New York, 1980.

3. Hazard Evaluation and Technical Assistance Report (HETA) 82-115-1101 Fire Department Poughkeepsie, New York, April, 1982

4. HETA 80-118, Chemical Control Facility, Elizabeth, New Jersey, April, 1980.

IX. AUTHORSHIP AND ACKNOWLEDGEMENTS

Report Prepared by: Kern E. Anderson
Public Health Advisor

Originating Office: Hazard Evaluations and Technical Assistance Branch
Division of Surveillance, Hazard Evaluations, and Field Studies

X. DISTRIBUTION AND AVAILABILITY OF REPORT

Copies of this report are currently available upon request from NIOSH, Division of Standards Development and Technology Transfer, Publications Dissemination Section, 4676 Columbia Parkway, Cincinnati, Ohio 45226. After 90 days, the report will be available through the National Technical Information Service (NTIS), 5285 Port Royal, Springfield, Virginia 22161. Information regarding its availability through NTIS can be obtained from NIOSH Publications Office at the Cincinnati address. Copies of this report have been sent to:

1. Shelby Township Fire Department
2. International Association of Fire Fighters
3. NIOSH, Region V
4. OSHA, Region V

For the purpose of informing affected employees, copies of this report shall be posted by the employer in a prominent place accessible to the employees for a period of 30 calendar days.

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TABLE 1

LIQUID DISPOSAL INC., SHELBY TOWNSHIP, MICHIGAN

RESULTS OF HRGC-LRMS ANALYSIS OF EXTRACTS OF EPA/REGION V SAMPLES SUBMITTED FOR TETRA THROUGH OCTACHLORINATED DIBENZO-p-DIOXINS AND DIBENZOFURANS

samples analyzed by Wright State University
(results recorded in parts per billion (ppb))

META: 83-326

PARAMETER	Blank (Control)	1/4 mile SW of Dequindre Rd. on Hamlin Rd (Control)	1/8 mile NW of Shelby Rd. on 22 Mi.	SW corner 22 Mi. Rd & Shelby Road	Composite Waste Oil Lagoon	Bkgrd Rinse Water (Control)	Wash Twp Fire Dept. Rinse Water	Shelby Twp. Fire Dept. Rinse Water	Sterling Hgts. Fire Dept. Rinse Water	East Fly Ash Pile	West Fly Ash Pile
SAMPLE NUMBERS	83EP10506	83EP10501	83EP10502	83EP10503	83EP10504	83EP10506	83EP10507	83EP10508	83EP10509	83EY02544	83EY02545
TCDF's	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TCDD's	ND	ND	ND	ND	ND	ND	ND	PD	1.5*	1.1*	
PCDF's	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCDD's	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HxCDF's	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
HxCDD's	ND	ND	ND	ND	ND	ND	ND	PD	ND	ND	ND
HpCDF's	ND	LD	ND	ND	ND	ND	ND	ND	ND	1.6	1.4
HpCDD's	ND	0.10	0.12	0.07	11.0	ND	ND	ND	ND	5.6	4.7
OCDF's	ND	ND	ND	ND	2.0	ND	ND	ND	ND	1.3	2.3
OCDD's	ND	0.23	0.20	0.08	29.0	ND	ND	ND	ND	6.9	11.4

ND - NOT DETECTED * NOT ONE TO 2,3,7,8 - TCDD ISOMER

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APPENDIX III

THE JACKSONVILLE, FLORIDA AMERICAN ELECTRIC FIRE

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INTERNATIONAL ASSOCIATION OF FIRE FIGHTERS
1750 NEW YORK AVENUE, N.W., WASHINGTON, D.C. 20006
TELEPHONE NO. (202) 872-3484

John A. Gannon
President

Alfred K. Whitehead
Secretary-Treasurer

February 1, 1984

James Melius, M.D.
Chief
Hazard Evaluation and Technical Assistance Branch
National Institute for Occupational Safety & Health
Robert A. Taft Laboratories
4676 Columbia Parkway
Cincinnati, OH 45226

Dear Jim:

To confirm our telephone conversation of this date, the International Association of Fire Fighters on behalf of our affiliate Local 122, Jacksonville Florida, requests NIOSH's technical assistance in evaluating protective clothing and equipment contamination and health hazards to fire fighters exposed to PCBs and other toxic products of combustion following the explosion and fire of January 29, 1984 at the American Electric Corporation warehouse in Jacksonville, Florida.

As employee representative of the members of the International Association of Fire Fighters, I would appreciate that all correspondence regarding this matter be directed to me as well as Mr. Manly Bolin, President, IAFF Local 122, 2205 Haines Street, Jacksonville, FL 32206; (904) 356-1834 or 359-0035.

The IAFF will be happy to assist and cooperate in any way possible. Please contact us if further information is required.

Sincerely,

Richard M. Duffy
Health & Safety Coordinator

RMD:bhs

cc: John A. Gannon, President, IAFF
John S. Glenn, IAFF 12th District Vice President
Manly Bolin, President, IAFF Local 122

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DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Centers for Disease Control
National Institute for
Occupational Safety & Health
Robert A. Taft Laboratories
4676 Columbia Parkway
Cincinnati OH 45226

March 28, 1984
HETA 84-169

Lieutenant Phil Eddins
International Association of Fire Fighters -
Local No. 122
2205 Haines Street
Jacksonville, Florida 32206

Dear Lieutenant Eddins:

This letter briefly presents the polychlorinated biphenyl (PCB) analyses of the samples collected by NIOSH concerning the January 29, 1984, fire at the American Electric Company in Jacksonville, Florida.

Fabric and surface wipe samples were collected to determine (a) the degree of contamination of the fire fighters protective clothing and (b) evaluate the effectiveness of the decontamination procedure used by the site cleanup contractor to decontaminate the protective clothing. The decontamination procedure basically involved dipping the garments in a tub containing a laundry detergent followed by rinsing with water in a second tub. The wipe samples represent surface contamination in terms of micrograms of PCB per 100 square centimeters of surface area (ug/100 cm^2). The fabric samples represent both surface contamination and contamination that had permeated the clothing in terms of micrograms of PCB per gram of fabric (ug/gm).

The PCB analyses for the fabric and wipe samples are presented in Tables I and II, respectively. It is evident from these analyses that the protective clothing worn by the fire fighters had become contaminated with PCBs during the incident. In addition, these analyses indicate that the decontamination procedure may have futher contaminated the garments. Comparison (Table I) of the average PCB concentrations show that the decontaminated garments had a concentration (239 ug/gm) that was approximately 1.9-times greater than the concentration (126 ug/gm) for the contaminated garments. Since all the protective clothing worn by the fire fighters during the incident has been permanently removed from service, remedial recommendations concerning decontamination will not be made. As you are aware, NIOSH is presently involved in a preliminary evaluation of a Freon-113® based system for PCB-decontamination of fire fighter protective clothing. Although the results of the evaluation are not yet complete, the available results are encouraging. I will keep you informed as to the progress of the evaluation.

Table III presents the PCB analyses of the solid and liquid samples obtained at the fire site. A sample of oil obtained from the product storage tank contained 53,300 ug/gm PCB. This tank was assumed to represent the primary

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source of PCB-oil involved in the fire. Liquid samples obtained from puddles at different points on the site contained between 57.5 to 47,200 ug/gm PCB (mean 12038, S.D. ± 23509).

The analysis of the soot and oil samples for chlorinated dibenzofurans and chlorinated dibenzodioxins is not yet complete. As soon as these results are available, I will forward them to you.

I would greatly appreciate receiving a copy of the fire incident report whenever it is available.

I wish to express my appreciation for the assistance provided to NIOSH by yourself and others of Local 122 during our visits to Jacksonville on February 2 and 13. If you have any questions regarding these results, please do not hesitate to contact me at (513) 684-4374.

Sincerely yours,

John R. Kominsky, M.S., C.I.H.
Group Leader
Industrial Hygiene Section
Hazard Evaluations and Technical Assistance Branch
Division of Surveillance, Hazard Evaluations and Field Studies

Enclosures
cc:
Chief Gunn, City of Jacksonville Fire Dept.
Mr. Bolin, IAFF, Local 122
Mr. Duffy, IAFF
Mr. Ashley, Quadrex HPS
Mr. McIlvaine, Quadrex HPS
Ms. Stinson, EPA Region II
Mr. Steinacker, Du Pont
Mr. Galson, Galson Technical Services
Dr. Melius
Dr. Seligman
Ms. Kobran, Hazardous Waste Report
Mr. Kominsky
Mr. Gray, CDC
NIOSH Region IV
HETA 84-169
JRKOMINSKY:rpj:Dr.221:Ridge:Cintl:CH

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Table I

PCB (Aroclor 1260) Contamination of Fire Fighters Protective Clothing

Determined By Analysis of Fabric Samples

January 29, 1984, Fire at the American Electric Company
Jacksonville, Florida

February 1984

Sample Description(a)	Contaminated Garments(b) ug PCB/gm fabric(d)	Decontaminated Garments(c) ug PCB/gm fabric
Nomex fabric - coat	7.8	-
Nomex fabric - coat	0.76	-
Nomex fabric - pant	6.7	-
Nomex fabric - pant	14.8	-
Nomex fabric - pant	601	-
Nomex fabric - coat	-	15
Nomex fabric - coat	-	68
Nomex fabric - coat	-	14
Nomex fabric - coat	-	37
Nomex fabric - pant	-	240
Nomex fabric - pant	-	1060
Nomex fabric - pant w/oily texture	-	-
	Mean 126	225
	S.D. ± 265	411

(a) Samples were five inch square swatches removed from the garments.
(b) These garments were contaminated during the incident, but not decontaminated prior to being stored.
(c) These garments were contaminated during the incident and then decontaminated via the site decontamination procedure.
(d) One ug/gm is equivalent to one part per million (ppm).

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Table II

PCB (Aroclor 1260) Contamination of Fire Fighter's Protective Clothing

Determined by Analysis of Surface Wipe Samples

January 29, 1984, Fire at the American Electric Company
Jacksonville, Florida

February 1984

Sample Description(a)	Contaminated Garments(b) ug PCB/100 cm^2	Decontaminated Garments(c) ug PCB/100 cm^2
orex fabric - coat	15.8	-
elret	2.2	-
orex fabric - coat	-	1.7
orex fabric - coat	-	0.35
orex fabric - pant	-	7.2
atural rubber boot	-	10.7
	-	2.4

(a) An approximately 100 cm^2 area of the protective clothing was wiped using a No. 50 Whatman smear tab pre-moistened in cyclohexane.

(b) These garments were contaminated during the incident, but not decontaminated prior to being stored.

(c) These garments were contaminated during the incident and then decontaminated via the site decontamination procedure.

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Table III

PCB (Aroclor 1260) Analyses of Solid and Liquid Samples Obtained at the Fire Site

American Electric Company
Jacksonville, Florida

February 1984

Sample Description	ug PCB/gram	% PCB
Liquid from the product storage tank - center of the site	53,300	5.30
Liquid from a puddle beneath the storage tank - center of the site	47,300	4.73
Liquid from a puddle - N.E. corner of site	731	0.073
Liquid from a puddle - N.W. corner of site	57.5	0.006
Liquid from a puddle - S.W. corner of site	66.6	0.006
Solid carbonaceous type material on top of 55-gallon drum	1460	0.147

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Mr. BROWN. Mr. Chairman, my name is John J. Brown, I am the legislative director of the International Union of Operating Engineers, and we extend our deepest apologies to the committee for the absence of J.C. Turner, our general president. I made a call, he is out of town, we had hoped his plane would land, but it hadn't as of the time I had made the call.

As you are aware, Mr. Chairman, Mr. Turner is the general president of the Operating Engineers, and the chairman of the AFL-CIO Standing Committee on Occupational Safety and Health. And we are here today seeking your assistance in protecting the safety and health of workers engaged in cleaning up toxic waste dump sites.

All indications—if I may go off the record for a minute, Mr. Chairman, there will probably be three major crafts involved in the cleaning up the toxic dump sites: There will be the operating engineers, the laborers, and the Teamsters, I would say those are the three main craftsmen that will be involved in cleaning up dump sites.

And I think when you listen to what the firemen have to say and begin to realize, there is only one training site on the whole east coast, an apprentice school for the training of dump sites, and that is in New Jersey, at local No. 825.

You can just picture the kind of a deal that we are talking about, the lack not only of cooperation that we feel, but also maybe this elitist feeling that seems to go with—as presented by the firemen—that the Government workers seem to be a little bit more protected for some reason or other than the average worker who has to go out on the job and earn a living for himself and his family.

And I guess it is kind of horrendous on our part to think that people would develop a manual that might be 500 or 600 pages thick to protect their own, and then turn around and produce a manual that if you threw up in the air, it is so light that it would probably float.

So there is something wrong in the thinking of the Federal employees or the Federal agencies that we let workers go into hazardous sites without full protection. Firemen go to hazardous sites without full protection, and then not protect the people whom have to go in there day in and day out, and not only help this Nation clean up a bad situation, but then turn around and not have the protection that they should be afforded.

We have submitted statements time and time again, and I am not going to read my whole statement, Mr. Chairman, I would like to see it entered into the record.

But I would like to make some pertinent points, and one is that we would like to state for the record that my union, as well as other unions in the AFL-CIO support the strongest possible standards, including at least a $10 billion cleanup fund, mandatory cleanup schedules, effective cleanup standards, reasonable public participation and citizen suits, coverage of Federal facilities and properties, some sort of victims' compensation, including Federal cause of action, increased health studies and research, import equalization taxes, and mandatory worker training and protection provisions.

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It is, of course, the latter issue that brings us here today. While the community hazards of toxic waste dumps have received a great deal of public attention, as indeed they should, the workers side of the hazardous exposure equasion has been largely ignored, especially by the Federal Government.

One of the many failures of OSHA under the Reagan administration has been an almost complete disregard for workers engaged in toxic waste cleanup efforts. Over 5 years ago, and even before the first Superfund law, we raised our concerns about the lack of regulatory worker protection with both OSHA and the EPA.

At that time, our immediate concern was for the workers involved in the Love Canal situation, in which they were sent in to clean up, with little or no safety and health protection or training.

As a result, we sought and obtained provisions in the first Superfund law that directed OSHA and EPA to jointly develop an effective safety program, and health program, for toxic waste cleanup operations.

Five years later, except for a phantom manual, which we understand has been developed, there has been nothing done to protect the workers on cleanup sites.

However, the EPA has developed a set of safety and health guidelines for its own people. We believe that these guidelines could serve as a model for the development of an OSHA standard, and we would submit a copy of the EPA guidelines for the record, but I believe that has been done, to the general counsel.

As we see the problem, the greatest need is for a set of comprehensive OSHA standards governing toxic waste sites. As of now, the only applicable safety and health standards are general construction standards, a vague and outdated personal protection standard, perhaps a few exposure standards for individual toxic substance, and the general duty clause.

None of these are very effective in that they do not deal with the inherent safety and health problems of the site itself. In this respect, we are dealing with a unique situation where the workplace and the hazards are one in the same.

It is akin to a fireman whose workplace is a burning building. Rather than to seek to protect the worker from specific individual hazards, what is required is protection from the entire work environment itself.

We, therefore, are seeking to develop a comprehensive OSHA standard, a program to protect the workers from their extremely hazardous environment of toxic waste dumps, rather than waste time and effort trying to determine exposure limits to the individual chemicals and other toxics that may be in the site.

What is required is a program that includes the following: One, effective continuous training; two, engineering controls; three, work practice rules governing the various clean-up operations; four, personal protective equipment and clothing, respirators designed specifically for toxic exposures; five, medical monitoring and surveillance of the workers on a regular basis; six, exposure monitoring and hazard assessment requirements; seven, effective right-to-know rules; eight, rules governing the handling, transporting, label and exposing of toxic wastes; and, nine, rules governing new equipment or technologies.

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While we cannot sit here today and specify exactly what all the components of an effective standard should be, we in the labor movement do have sufficient staff and experience to enable us to join with industry and government representatives to develop such standards.

While this is being done, Mr. Chairman, I would like to go over, and while we are awaiting the development of new standards, it is critical that OSHA enforce those standards that are on the books today.

Specifically, Mr. Chairman, I refer to 29 CFR 1926, subpart (c) as follows:

Section 1926-20, requiring that no contractor shall require their employees to work in or under conditions which are unsanitary, hazardous or dangerous to his health or safety; that a contractor's safety and health program shall provide for frequent and regular inspections of the job sites; materials and equipment by competent persons designed by the employer; and, three, the employers shall permit only those employees—Mr. Chairman—qualified by training or experience to operate equipment and machinery.

Section 1926-29: Requiring the employer to instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work or her work; environment to control or eliminate any hazards or other exposures to illness or injury; employees required to handle or use poisons, caustics, or other harmful substances shall be instructed regarding the safe handling and use, be made aware of the potential hazards, personal hygiene and personal protective measures required.

Three, employees that handle or use flammable liquids, gases or toxic materials shall be instructed in the safe handling and the use of these materials and made aware of the specific requirements contained in subparts (d), (f), and other applicable subparts of part C.

Section 1926-28: Requiring that the employer be responsible for requiring the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions, or where this part indicates the need for such equipment to reduce the hazards to the employee.

And we ask this subcommittee to join in our appeal, Mr. Chairman, and we thank you for your time and consideration.

[The prepared statement of J.C. Turner follows:]

PREPARED STATEMENT OF J.C. TURNER, PRESIDENT, INTERNATIONAL UNION OF OPERATING ENGINEERS

Mr. Chairman, members of the subcommittee. My name is J.C. Turner and I am the President of the International Union of Operating Engineers. I am also the chairman of the AFL-CIO's standing committee on occupational safety and health.

We are here today seeking your assistance in protecting the safety and health of workers engaged in cleaning up toxic-waste dump sites.

By definition these sites are among the most hazardous working environments to which our members are exposed. They contain everything from known chemical carcinogens and heavy metals to PCBs and dioxin.

Exposure to toxic wastes can cause a variety of diseases including many different kinds of cancer, kidney and liver damage, sterility and birth defects.

Given the hazardous nature of these dumps, it is incredible that there are no OSHA standards governing clean-up work and very little OSHA inspection and enforcement activities at dump sites.

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Although only six abandoned sites have been cleaned-up thus far under the Federal Superfund Law, we expect that the reauthorization and expansion of the law this year will result in a massive clean-up effort requiring larger numbers of workers.

Unless properly trained and protected, this dramatic expansion of clean-up work will also dramatically increase the exposure of workers to toxic wastes. This must be prevented.

The dimensions of the workers safety and health problem are directly proportional to the magnitude of the toxic-waste problem in the United States.

Some 71 billion gallons of toxic waste are generated each year in the United States, much of which has been improperly disposed of in abandoned landfills. These sites contaminate the air, soil and water around them, including community drinking-water supplies.

The EPA estimates that there are between 16,000 and 22,000 abandoned toxic waste sites in the United States. Some 2,000 of these present and immediate public health danger and have been placed on EPA's national priority list for immediate clean-up.

According to EPA, it will cost about $6 million to clean up the average toxic waste site and about $12 million if ground water contamination is involved.

Depending upon which set of figures one uses, the overall clean-up cost requirements range from a low of $5 billion over 5 years, recommended by the Reagan administration, to $100 billion, which the office of technology assessment estimates will ultimately be required.

Whatever the ultimate cost, the magnitude of the problem is mind boggling and will require a massive effort for solution. We estimate that to clean up the average toxic-waste site will require at least 50 highly trained and skilled workers. That translates into at least 1 million jobs for the 20,000 or more sites involved. In addition, other jobs will be created in the engineering, design, and equipment production sectors.

In this respect, we are not only confronted with a very serious social and public health problem, but a new growth industry as well.

At this point, Mr. Chairman, I would like to state for the record that my union as well as all the other unions of the AFL-CIO support the strongest possible superfund law including: at least a $10 billion clean-up fund; mandatory clean-up schedules; effective clean-up standards; reasonable public participation and citizen suits; coverage of federal facilities and properties; some form of victims' compensation including federal cause of action; increased health studies and research; import equalization taxes; and mandatory worker training and protection provisions.

It is, of course, this latter issue that brings us here today. While the community hazards of toxic waste dumps have received a great deal of public attention—as indeed they should—the worker side of the hazardous exposure equation has been largely ignored, especially by the Federal Government.

One of the many failures of OSHA under the Reagan administration has been an almost complete disregard for workers engaged in toxic-waste clean-up efforts.

Over 5 years ago—even before the first Superfund law—we raised our concerns about the lack of regulatory worker protections with both OSHA and EPA. At the time, or immediate concern was for the workers involved in the Love Canal situation, in which they were sent in to clean-up with little or no safety and health protection or training.

As a result we sought and obtained provisions in the first Superfund that direct OSHA and EPA. to jointly develop an effective safety and health program for toxic waste clean-up operations. Five years later—except for a phantom manual which I understand has been developed but no one has seen—nothing has been done to protect workers

However, the EPA has developed a set of safety and health guidelines for its own people. We believe that the guidelines could serve as a model for the development of an OSHA standard. I would like to submit a copy of the EPA guidelines for the record.

As we see the problem, the greatest need is for a set of comprehensive OSHA standards governing toxic waste sites. As of now, the only applicable safety and health standards are general construction standards, a vague and outdated personal protection standard, perhaps a few exposure standards for individual toxic substances, and the general duty clause.

None of these are very effective in that they do not deal with the inherent safety and health problems of the site itself. In this respect, we are dealing with the unique situation where the workplace and the hazard are one and the same. It's akin to a fireman whose workplace is a burning building. Rather than seek to pro-

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tect the worker from specific individual hazards, what is required are protections from the entire work environment itself.

We therefore are seeking to develop a comprehensive OSHA standard or program to protect workers from the extremely hazardous work environment of toxic waste dumps. Rather than waste time and effort trying to determine exposure limits to the individual chemicals and other toxics that may be in the site, what is required is a program that includes the following:

(1) effective, continuous training;

(2) engineering controls;

(3) work practice rules governing the various clean-up operations;

(4) personal protective equipment, clothing, and respirators designed specifically for toxic exposures;

(5) medical monitoring and surveillance of the workers on a regular basis;

(6) exposure monitoring and hazard-assessment requirements;

(7) effective right-to-know rules;

(8) rules governing the handling, transporting, labeling, and disposing of toxic wastes; and

(9) rules governing new equipment or technologies.

While we cannot sit here today and specify exactly what all the components of an effective standard should be, we in the labor movement do have sufficient staff and experience to enable us to join with industry and Government representatives to develop such a standard.

Indeed, we believe that the toxic-waste problem lends itself to the establishment of an OSHA standards advisory committee under the Act. It may be that given the variety of dumps that exist, one single standard may not be sufficient and a set of such standards should be developed.

There are workers today engaged in clean-up work with little or no Federal protections. In an effort to fill the gap some states like New Jersey have developed certain standards and training programs and my union, the operating engineers, has developed its own training programs and in some cases, its own equipment.

This is no substitute for effective Federal action governing all toxic-waste sites whether they are in New Jersey or Mississippi. Every worker needs protection in what undoubtedly will be one of the most massive environmental clean-up programs ever undertaken.

Given our recent experience with OSHA and EPA and their lack of response to the safety and health problems of toxic waste cleanup, we in the labor movement have concluded that additional legislative direction should be included in the reauthorization of superfund.

At a minimum, OSHA should be directed to develop and promulgate an effective set of standards covering the nine safety and health issues outlined above, and firm deadlines should be imposed for issuing the standards.

In addition, we believe that it is necessary to include in the new Superfund law minimum safety and health guidelines to be enforced by OSHA until such time the final standards are issued.

A number of unions are working together with the AFL-CIO in developing a set of recommendations along these lines that we would like to submit for the subcommittee's consideration.

However, while we are awaiting the development of a new standard or standards, it is critical that OSHA enforce those standards on the book today. Specifically, Mr. Chairman, I refer to 29 CFR 1926 subpart C as follows:

1926.20 requiring that (1) no contractor shall require their employees to work in or under conditions which are unsanitary, hazardous or dangerous to his health or safety; (2) that a contractor's safety and health program shall provide for frequent and regular inspections of the job sites, materials and equipment by competent persons designated by the employer; and (3) the employer shall permit only those employees qualified by training or experience to operate equipment and machinery.

1926.21 requiring (1) the employer to instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury; (2) employees required to handle or use poisons, caustics, and other harmful substances shall be instructed regarding the safe handling and use, and be made aware of the potential hazards, personal hygiene, and personal protective measures required;

(3) employees required to handle or use flammable liquids, gases, or toxic materials shall be instructed in the safe handling and use of these materials and made aware of the specific requirements contained in subparts D, F, and other applicable subparts of part C.

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1926.28 requiring that the employer be responsible for requiring the wearing of appropriate personal protective equipment in all operations where there is an exposure to hazardous conditions or where this part indicates the need for using such equipment to reduce the hazards to the employees.

We ask that this subcommittee join us in our appeal.

We thank you, Mr. Chairman.

Mr. GAYDOS. Thank you very much, and without objection, the entire prepared statement will be made part of the record.

Mr. BROWN. Thank you, Mr. Chairman.

Mr. GAYDOS. Let me ask for some general observations. As I see the problem, we all know when you have a dump site, and everybody knows about it, that is one thing. Because you have an accumulation over a period of years, there is evidence, overt evidence, people are dumping there, it is known as a dump site in most instances, and evidence is there.

What bothers me is that there are so many areas throughout the country, that is what this hearing is dealing with. We are dealing with dump sites, for want of a better descriptive term.

There are so many areas in the country where the operation of them is hidden. I have talked to firemen, and you would be most familiar with it, where they say that every fire, they expect the unexpected. They don't know what is in that building or in that garage.

And each little garage might be a dump site in miniature, so the problem is so comprehensive and so widespread throughout the country that sometimes, it frightens you and it defies a reasonable approach to the problem, to be very frank with you.

We have got to start somewhere. And we are talking about these known, admitted, obvious public dumps. We are talking about the distinction between—and again, I want to emphasize the example I had suggested and you had alluded to, that you have an EPA employee all dressed in specialized equipment.

Right next to him is a fellow in a blue work shirt doing the same thing. He is working while the other guy is inspecting. One guy is exposed and one guy isn't. Just so unadulteratedly cruel to see that. And it seems that in a civilized nation, it should be unheard of, and it is so obviously unjust. I think you make that point.

But those are some of the problems that bother me as to where we are, what are we talking about, because I think that so many of these situations remain undiscovered.

I know in our area, we had a chemical plant that was a packaging plant, it had taken benzoil and packaged it, and toluene, and ammonia and stuff like that, next to a big U.S. Steel plant, and it caught on fire.

The firefighters went in and it started exploding, a couple of fellows got killed in there, and there was a lot of aftermath from the exposure of the firemen. And I think this happens as a natural phenomenon on a regular basis throughout the country.

I am sure that is happening. I think everybody knows it. I don't know if we are just woefully inadequate on this committee. I would hope that maybe we are making a jab or a stab in the right direction.

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Let me ask you a couple of questions for the record so that our colleagues who aren't here today would have a better comprehension and understanding of your testimony.

Given OSHA's slowness or reluctance to develop health and safety standards in this area, and that is admitted, regardless of the memorandum, would you feel more comfortable with EPA supervising worker health and safety at toxic waste sites? Would that be a feasible answer or an area to turn to, as distinguished from OSHA?

If we could do that, legislatively or otherwise?

Who do you trust more? That is probably what I am asking.

Mr. DUFFY. Our opinion is that EPA's record is consistent with OSHA's, and that is, very little is done for at least the emergency personnel on the scenes. I think it is time that OSHA be alerted to its responsibility and they be forced to do corrective action, or at least site inspection for workers, whether they are emergency workers or cleanup workers at a dump site.

Congress gave them the authority to protect workers' health and safety, and I think it is time that they be reminded of that mandate and be required to begin requiring training programs, protective equipment, as they do for themselves.

Just scanning the OSHA testimony they are going to give this morning, and the EPA testimony that they are going to give later on this morning, they have elaborate programs for either their compliance people or their site mitigation people, and likewise, their standards should be similar for the workers on the scene.

Mr. GAYDOS. In other words, you are saying it would be mixing oranges with apples and getting the thing all confused and making it more confused than it is if we start moving toward EPA and away from OSHA, after a fashion——

Mr. BROWN. Well, I think it was probably the intent of Congress, when it first developed the OSHA program, to reach out and protect that worker who was denied protection. I think the part that maybe hurts us, Mr. Chairman, is the fact that we probably have in the Superfund bill, for the first time, where government, labor, and management should be in no adversarial position at all.

We are talking about one of the best things to happen in this country. We have never recognized this Nation as an industrial nation making industrial waste. So we turned around and we hid it.

We recognized that human beings make human waste, so we always made allowances for it. On the other hand, we had fly-by-night contractors, and I would have to say the Federal Government, those agencies, are involved, and I think labor is to be blamed, I think management is to be blamed, but to go back and keep blaming who is responsible for what has been done just doesn't make any sense.

So, here we have a Superfund bill, and if we put the proper amounts of moneys, $10 to $12 billion, regardless of what EPA and other groups might say that they can't spend it, they can spend it if they want to clean up this country.

Sweden does it. It is a much smaller nation than ours. They have gotten into these programs and have protected the lives of their citizens and workers. Here we are still fighting the game whether

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EPA workers should be protected, while they go out, and according to our own firefighters—workers are picked off the streets.

You had better go back to the slave market. It is no different. You take a man off the street and you put him on a job like that, expose him, and his fingers might drop off in 6 or 7 months to a year. You don't know what he is bringing home to his family.

Some of those dump sites have been laying around for the past 15, 20, 25 years. We don't know what kind of mix is out there. It is a chemical soup. And yet, we send not only workers in there, we send firefighters and, on the other hand, we take the elitists who say, "Hey, protect me," a terrible, terrible wrong, and yet we have management saying we can't spend money, and I don't know where the tax—that is Congress' job to come up—we think a broad-based tax is needed, we think that management people, those who are involved—and I know there are problems between the wet and dry waste, and we are willing to sit down with both management and the Congress, as far as labor is concerned to discuss the situation.

But to answer your question, I think it is a three-way street now. I think OSHA has to be involved, and I think we have to take a hard look at EPA and some of the other people who are holding this bill back, saying, "Oh, we can only spend $5 billion; we can only spend $3 billion."

I have never seen the day that the Federal Government couldn't spend moneys. We only have to go back to see rubber developed in the Second World War. Anytime we have ever needed to get a job done, and we had to spend moneys to do it, including nuclear energy and nuclear bombs, it has been done.

And we are sitting on a nuclear timebomb called toxic waste in this country.

Mr. GAYDOS. Well, I was probably alluding to the fact that a lot of committees that have jurisdiction over EPA have been holding hearings, and before you know it, they are in there talking about worker protection.

And I have to at times kick people off of our turf, because they don't understand what we have been doing, and it is a nice situation they find themselves in. It is maybe politically sensitive for them. And they look for a purpose or reason to hold a hearing to make themselves look good, but what they do is destroy the very purpose of OSHA, as we put it together in the first instance some 15 years ago, what it was supposed to do.

That is why I asked the question about EPA and OSHA and the comparison, if one is duplicating another, should they be merged or should there be some changes?

So, apparently, the feeling among this group, anyhow, is that OSHA should be kept in its own jurisdiction and be asked to do what they were designed to do, and that EPA has their own functions, too. Is that the feeling that I get from the group?

Mr. ELLENBERGER. Mr. Chairman, this history, over the last 5 and 6 years over toxic waste dumps illustrates the problem of interagency competition and interagency squabbling over how they can best avoid their responsibilities under the law.

We believe that the goal of protecting workers at these hazardous dump sites is paramount, and whatever it takes to provide that protection ought to be taken.

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But we already have in existing law the means to bring that about. And I speak specifically about the OSH Act. OSHA can, indeed, take action to establish regulations providing for worker protection at these sites.

They can take actions requiring adequate training for workers at these sites, just as adequate training is already required for EPA employees, for NIOSH employees, and for OSHA employees that are subjected to the hazards at these sites.

Those requirements ought to be extended to workers involved in cleanup. And additionally, environmental monitoring should be required, health hazard monitoring should be required, along with this education monitoring.

Specific standards have to be established for these worksites.

Mr. GAYDOS. Since you are talking about that, let's take these training sites—we have operating engineers at a training site in New Jersey that is regarded as one of the finest of its kind.

Keeping in mind that that exists, would it be proper then to raise a question whether a system or a similar set of training facilities should be developed in the country, regarding toxic waste sites, where they are? Maybe we should move it there, and if we do, and we move them there near these sites, who would be in charge, and where should they be funded?

Should they be—would EPA be expected to fund them, because of the closeness to the toxic sites—forgetting about workplace hazards, because we can't confuse the two, although I know they are together, a common problem.

But talk about the main, unadulterated, obvious dump sites. And here we are talking about who would fund them, should the Superfund appropriations, in light of the fact that we are getting cut down with OSHA funds continuously, always under assault.

I have been defending the budget for 10 years alone, practically, and always under assault. Should we talk about these training facilities? Take that one little aspect, fund it from EPA funds?

They seem to be able to get it easier—take that Superfund—they seem to be very popular, and maybe we should divert a few of those funds over there to a training program of some sort.

Would that be the temporary answer until we can get something started and get some standards in place, and some funding from the OSHA aspect? Those are the practical problems that I think we have, and I am asking your guidance and enlightenment, maybe advice, too.

Mr. BROWN. Well, part of our statement, Mr. Chairman, on page 3, where we state, whatever the ultimate costs, the magnitude of the problem is mind-boggling and will require a massive effort for solution.

We estimate that to clean up the average toxic waste site will require at least 50 highly trained and skilled workers. That translates into 1 million jobs for the 20,000 or more sites involved.

So, when you are talking about the establishment of training sites like we have in the operating engineers and local 825, yes, we think it should be funded. And we are fully supportive, I think, of the previous statement by the previous speaker that OSHA has to be there.

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Without OSHA, then I think you would destroy the intent of Congress that was brought about for 15 years, and the only reason you brought it about was because workers were not being protected.

If you look at the Vietnam War, where 51-some-odd-thousand people died, and we had riots in the streets and the colleges of this Nation, the worker faces it every year. Every year, 57,000 of our people are maimed or killed just by going to work. No other reason. Just by trying to earn a living.

So, OSHA has to be involved. The moneys for Superfund have to be transferred over into training sites, vehicle that will train our people to go in there and are properly trained to clean up the job. That is what has to be done, definitely there has to be money appropriated for these sites.

How else are we going to do it, sir? We have to come to you to say, yes, there is a certain course that has to be taken. OSHA has to be involved, because they have been involved in health and safety for 20-some-odd years, 15 years, rather, of worker protection.

And then take some of the Superfund moneys and give it to those people who are going to be involved in clean-up and train them. And surely, if we can produce a book of this magnitude and in a short space of time, we can do the same thing clean-up sites or clean-up training programs across this Nation of ours.

Mr. GAYDOS. Would there be a duplication? You are going to do it through the Superfund, or are you going to do it through OSHA, or both?

Mr. BROWN. I would love to do it through OSHA, but as you say, Mr. Chairman, are you going to be able to raise the moneys? At least if we pass Superfund, and we are talking $10 billion, which should be in the area that we are thinking of, and we do a proper job, then we say to you, for God's sakes, take x number of dollars out of the Superfund and place it over in the training sites.

Mr. GAYDOS. I am going to have to go with you and accompany you over to the other committee and testify before it.

Mr. BROWN. All the way to that little place on 15th Street.

Mr. DUFFY. I think you also need to look at a two-tier type training program. One, a generic program specific for each work group and their responsibilities at such site; and an on-scene training program prior to any site mitigation for other workers, and a prefire planning for fire departments in the jurisdiction.

That needs to be done, and of the billions of dollars that are included in Superfund right now, and hopefully will be continued in the future, I think it is time we sit back and look at the possibility of taking some of that money which should be very small compared to the overall budget, and develop such training programs.

I think if we look back at OSHA and its worker training programs that have developed, developed better new directions programs, unions did a wonderful job, worker representatives did a wonderful job, and employers did a job on developing programs specific to workers at worksites, following the same vein, such programs should be considered under the Superfund legislation, developing similar programs where we can finally get a generic, overall training for our memberships; and second, a specific training, on-

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scene, before any site mitigations or in terms of fire departments' training as a prefire planning activity.

Right now, fire departments have no idea how they would respond to any site in any part of the country. And it has been shown by the documentation that we have. They just respond as if it was a house fire. And unfortunately, they walk away——

Mr. GAYDOS. Am I way off in my thinking when I conclude we have all kinds of fires going on that would be very comparable to a dump site fire, going on every day, in all of our communities, and all you are talking about is one big fire.

So why do you make so much of the fact that you better do—have certain things done——

Mr. DUFFY. Because——

Mr. GAYDOS [continuing]. Haven't you been concerned over the last 20 years——

Mr. DUFFY. Sure have.

Mr. GAYDOS. Even before we heard about these super-dooper dump sites and Superfund. Weren't you concerned about all the chemical fires——

Mr. DUFFY. Certainly.

Mr. GAYDOS [continuing]. Railroad cars turning over, and packaging plants exploding and old garages exploding and the firemen suffering terrible consequences from inhalation, because no one knew what the heck was in the place, right?

Mr. DUFFY. And there are more and more fire departments preparing for that, whether it is a structural fire, commercial fire, or even a transportation fire, there are elaborate programs established, equipments finally filtering into the departments.

However, we are talking about a different beast when we are talking about these chemical sites, these waste sites. But the big problem is that we know they are there. We typically know where they are, we can isolate those areas, we could tell people whether they should respond or not respond, and we have some idea of the consequences, and not to tell fire departments that they are there, not to involve fire departments in any pre-fire planning, as I said before, I think is criminal.

We are talking about something that we could logically prepare for, and we are not doing it.

Elizabeth, NJ, the State of New Jersey, U.S. EPA, other agencies, were on-scene there for over 2 years. They had firemen around the clock sitting in a patrol car for fire prevention activities, meaning they would be the first one to call if a fire started.

So they knew there was a great potential for a fire. But over that 2-year period, nobody went to the fire department, and said, if the fire occurs, we have this problem, we have these chemicals here, those that we know about, this area we don't know about.

But in any case, if a fire does occur, there should be some level of protection for the firefighters. That was never done, even though they had people there on overtime pay, 24 hours a day, waiting for a fire to start.

Mr. ELLENBERGER. Mr. Chairman, there are unions and employers in this country who are spending hundreds of thousands of dollars to train their members and their employees on how to deal with hazardous substances at dump sites and at other locations.

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Mr. GAYDOS. Let me stop you right there, if I may. I don't want to take you off-track. If that is true, is there now in place, among any of our unions, a requirement and a condition prerequisite that before you go into any area you must have some kind of training?

Do we have that policy in effect, directly, or is it sometimes in effect? Do we have that type of policy, you must have special training to go into a particular area?

Mr. BROWN. None that I know of in the construction trades, Mr. Chairman. Just basically we are told by the contractor once he picks up the contract that he has a bad situation. Most of the time—I would state that a contractor would say, put on a hat or wear a pair of rubber gloves or a pair of rubber boots.

But I don't know of any case where a worker has been told, look, you have got a bad situation—your Love Canal, yes, because it got a lot of news media—but for anybody to come in and say that, "we're telling Johnny Brown and Joe Gaydos, blah-blah-blah."

Mr. GAYDOS. It doesn't happen.

Mr. BROWN. No sir, not to my knowledge.

Mr. GAYDOS. It all the more illustrates the fact that we have to do something. What about those special gear and equipment and dress that we mentioned over here, it costs maybe $2,000 $3,000, and they throw it away?

Mr. DUFFY. That is the Coast Guard. The Coast Guard has done an awful lot of work on specialized chemical protective clothing. I am including exotic materials such as Viton or CP suits, coordinated polyester suits, that typically cost in that price range, $1,800 to $3,000.

But the astonishing thing is that they typically, unless they know exactly what they are exposed to, which in most cases they do not, they dispose of those $3,000 suits as a $20, $30 Tivex suit that the fire department would have.

The irony is that the fire departments would wish they could find out where the Coast Guard throws these things away, because they would be the first people on line to pick them up, and I am not being facetious.

Go to a fire department, and tell them to throw away a $600 set of clothing, because it looks OK, because they will say, there is no tears or burns or any holes, it must be OK.

But the Coast Guard has realized that chemical attack is different from rips, and they must dispose of it.

Mr. GAYDOS. The police force has SWAT teams, United Mine Workers have emergency rescue teams, would it be practical and feasible to consider some type of an emergency team, as far as you people are concerned?

Mr. DUFFY. Well, as the AFL-CIO has said——

Mr. GAYDOS. I mean really specialized.

Mr. DUFFY [continuing]. Some of the regulations and certification requirements under the Mine Safety Act have worked quite well. I think it is time that we look at civil certification and training requirements, and even clothing requirements for other workers.

Mr. BROWN. I think, Mr. Chairman, one of the main reasons that we are so hepped up on good, strong Federal standards is to drive the fly-by-night contractor away from this. This is a serious situation that we are looking at. And the last thing we need reputable

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contractors who will get in there, who will train our people, who will be around when the job is started, and when the job is finished, and 5 years down the road, when somebody points the finger at somebody, that a responsible contractor will be there.

But unless we have, strong standards and good, strong specs come out of EPA and good strong OSHA standards, what you are going to have is the fly-by-nighter who will go in there, do a lousy job to begin with, contaminate, maybe, the soil that he is removing and the soil where he is going to, and the worker himself and the community as a whole.

And that is why we have got to have a good, strong standard where if somebody is doing a job, than 5 years down the road, you might be able to point a finger and say, hey, you have done something wrong, my friend.

Mr. GAYDOS. I have sensitivity to your statement, because right in my own home community, next door, in an area called Swissville, we are doing the same thing. They have bulldozers taking dirt down because of PCB, evidence as deep as 5 and 6 feet.

They have been doing it now for a period of 4 or 5 months, and it is still not finished, and we had, as I understand it, one time, a fly-by-night outfit in there, and they changed it.

EPA, besides doing the work, has so stated on many occasions and personal conversations with me, that they now have what they call professionalism and a dependable contractor doing it, and the same elements you speak of were inherent in that problem.

And that is happening throughout the country. That is one of the sites that was given a high priority of clean-up, was located right among a lot of residential areas, but I can see the concern, I think you make a salient point, that you have to have responsible people doing the work.

I don't know. On our standards, I want you to know that when we have the other people coming in, we are going to be asking some, I think, very direct questions, whether they support standards and whether these standards are in the making, and how come they are late, what they intend to do about it, et cetera, all along the line.

Let me ask a couple of practical questions.

As far as training is concerned, and training funds, would you suggest a continuation of what is in place now, as far as your organizations having some training schools?

Would you want those continually funded and expanded, and in conjunction therewith, would you suggest to the committee any other areas where training funds could be practically and more effectively utilized, such as an expansion of some other agency, or including OSHA?

Mr. BROWN. I think they would have to be expanded, Mr. Chairman, if you are talking about a million jobs. I think we have to accept the fact that you are talking about a brand new industry within the United States itself.

You are talking at least $100 billion that is going to be spent over the next 20, 25 years to clean up this country, and in order to do it, you are going to have to necessarily train people, the contractors, responsible contractors—you are going to have to expand training facilities, no question, at least the way I view it, sir.

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Mr. GAYDOS. All right, I am going to recess. Does anybody else want to make a statement? Your statements are excellent, and they should be most informative and effective, if anybody would take the time to read them, believe me.

I have to go over and cast a vote. Do you want to make any other statement, and then we will go to the next group.

All right, thank you very much for your appearance, and would you respond to questions or clarifications we may want?

Mr. BROWN. Yes, sir, absolutely.

Mr. GAYDOS. Thank you very much. We will be back in 5 minutes. We will stand in recess 5 minutes.

[Recess.]

Mr. GAYDOS. The committee will be in order. I apologize. We had two votes in a row, so I hope you understand.

Who is the boss of this triumvirate? Who wants to lead off?

STATEMENT OF STEPHEN A. LINGLE, DIRECTOR, HAZARDOUS RESPONSE SUPPORT DIVISION, OFFICE OF EMERGENCY AND REMEDIAL RESPONSE; STEVER DORRLER, CHIEF, ENVIRONMENTAL RESPONSE BRANCH; AND BOB MAGOR, DIRECTOR, OFFICE OF OCCUPATIONAL SAFETY AND HEALTH; U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. LINGLE. I am, Mr. Chairman.

Mr. GAYDOS. Would you identify yourself for the record, Steve, and take care of your colleagues that are with you, testifying with you, identify them for the record, please?

Mr. LINGLE. Yes, thank you. I am Stephen A. Lingle, and I am Director of the Hazardous Response Support Division at the U.S. Environmental Protection Agency. I am responsible for a broad array of activities supporting the clean-up of uncontrolled hazardous waste sites under the Superfund program.

I am pleased to be here today to discuss the respective roles and responsibilities of EPA and OSHA for the health and safety of workers employed at hazardous waste sites.

And with me today is, to my right, your left, is Mr. Robert Magor, who is Director of EPA's Office Occupational Safety and Health. Mr. Magor is available to answer questions on the agency's occupational safety and health programs.

And to my left, is Mr. Steve Dorrler, who is Chief of the Agency's Environmental Response Team in Edison, NJ. Mr. Dorrler is available to answer questions on the hazardous incident response safety training programs.

I would like to highlight——

Mr. GAYDOS. I don't want to interrupt you. You can highlight. What about these accusations that EPA people are dressed fit to kill, or all protected, and nobody else is protected? What is your position about that, do you think about that ever?

Mr. LINGLE. Well, yes, we do. I will say that the EPA guidelines and requirements do result in a high level of protection for EPA workers. We do have specific site safety plans at every hazardous waste site, and anyone who participates in any of the site activities is advised of the nature of the hazards and of the appropriate types of protective equipment that should be worn.

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We do not always have, in fact, often do not have, the authority to require that those people wear that same protective gear.

Would either of you like to comment further on that?

Mr. GAYDOS. May I ask one more question, while we are on it?

Mr. LINGLE. Sure.

Mr. GAYDOS. You have in-house training, I have to presume. Do you make that available, or is it made available directly or indirectly to other people, other agencies, organizations, and do you think it should be, and can it be? All those different questions in one.

Mr. LINGLE. The answer to that is yes, we do have in-house training. I think we have very comprehensive training on site safety. It is made available on a space-available basis to attendees other than EPA's own attendees, and indeed, the majority of our attendees for these courses have been either State and local workers or industry or workers employed by consulting firms.

Perhaps Mr. Dorrler, who is responsible for those training courses, could expand on that a little bit.

Mr. DORRLER. Yes, Mr. Chairman, I have a handout that I would like to present to you. There are extra copies in case you already have some, but it lists description of the training programs and the agenda, the schedule, and also has some application forms, if you or your staff would like to attend the course.

These are field-oriented courses that deal directly with operations at sites. As Mr. Lingle said, the majority of the participants in the courses are State and local people. As a matter of fact, this week, we have a course going on in Edison, NJ, and there are representatives of five hazardous materials response teams, which are fire department teams, and they are represented in there.

There are 50 such teams around the country, by the way.

Mr. GAYDOS. Fifty what?

Mr. DORRLER. Fifty hazardous materials response teams within major city fire departments.

Mr. GAYDOS. If a fire occurs, they get on the phone, and you tell them the response—the personnel response———

Mr. DORRLER. These are firefighters.

Mr. GAYDOS. Oh, firefighters.

Mr. DORRLER. Yes. And they have been specially trained by their local either city or State, in handling hazardous materials. And they will respond, yes, sir. Not at our request, by their local fire department request.

In any case, five representatives of different teams are at this course this week in Edison, NJ. And they are free of charge.

Mr. GAYDOS. In New Jersey?

Mr. DORRLER. There is one course in New Jersey. We also offer courses all around the United States. We teach about 90 presentations a year. We reached, last year, over 2,100 people at these formal courses; they have been offered in every State in the United States except 11.

There have been, in addition, augmented local courses that presented by our regional on-scene coordinators that reach an additional 2,000 first responders a year.

Mr. GAYDOS. How do you handle it as a budget item? Is it budgeted through the Superfund, or is it budgeted just generally?

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Mr. DORRLER. It is budgeted through Superfund.

Mr. GAYDOS. Through Superfund. What portion—I am a little bit off, because it is not in our jurisdiction—but what portion of Superfund is used—well, put it this way: There have been some complaints throughout the country—again, it is not in the jurisdiction of this committee, but it is information we should have—there have been complaints that the fund is, of course, wholly and woefully inadequate.

Could you, for the record, tell me what percentage of the funds, a figure number—have been or has been used or is contemplated to be used for this special training purpose?

Mr. DORRLER. Our budget last year for the seven core courses was $2.1 million.

Mr. GAYDOS. $2.1 million?

Mr. DORRLER. That comes to about $796 per student per course, which is very competitive if you want to consider we are not really competitive, but if you look at commercial training programs, they run about $1,200, in that range, per week, per 1-week course per student.

So our cost is about $700, $790 per student.

Mr. GAYDOS. Roughly around 12,000 going through your schools?

Mr. DORRLER. 2,000.

Mr. GAYDOS. 2,000.

Mr. MAGOR. 2,000. Congressman Gaydos——

Mr. GAYDOS. I hope you don't mind these questions, because I think it puts it in proper context, and is much better than reading a boring statement at times.

Mr. MAGOR. Well, you have certainly taken of us our mark. You asked about the——

Mr. GAYDOS. That is so I know you are telling the truth. I am just kidding you now. You are not under oath, testifying here, but I didn't mean to insinuate you wouldn't tell the truth.

Mr. MAGOR. Well, you asked about the protection of EPA employees and the contrast that seems to be projected in the protection levels of EPA employees versus others onsite.

Several years ago, I testified before you, and at that time, you were looking at the quality and the strength of the Federal agency programs vis-a-vis the private sector programs, and you were trying to strengthen the Federal programs, wondering if perhaps OSHA had greater powers in the Federal Government to punish the Federal agencies if the programs might not be stronger.

And at that time, and I still believe that to be true today, we were under the 29 CFR 1960 standards which apply only to Federal employees. And what you see is a manifestation of those standards. We are required to provide protective apparel for EPA employees.

We are required to train them in the correct use of the apparel, and very importantly, which doesn't come out in pictures, each EPA supervisor knows his responsibility, responsibility for the health and safety of his employees, and each employee knows his rights and responsibilities.

So I am pointing to the statements I made about 5 or 6 years ago, in that I think the 1960 standards that applied only to Federal employees would make an intelligent blueprint for health and safety programs nationally.

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Mr. GAYDOS. You see how we change around here? One time we are limited in our scope, and now we are trying to enlarge this. But things do change. We are forever in a state of flux, and I guess nothing is forever.

But I appreciate your testimony. If you want to continue, I promise not to throw you off track again.

Mr. LINGLE. All right, fine.

Well, at the risk of being too boring, I am still going to highlight a few items from my written testimony here.

Mr. GAYDOS. Boring to the uninformed.

Mr. LINGLE. Right, OK.

The specific responsibilities under CERCLA for worker health and safety at Superfund sites are spelled out in the National Contingency Plan, or NCP. Under the proposed revisions to the NCP, all response activities are required to meet the standards of the Occupational Safety and Health Act of 1970, and the laws of States, with plans approved under section 18 of that act.

The proposed NCP also states that all government agencies and private employers are directly responsible for the health and safety of their own employees.

Under a Federal fund financed response; that is, a Superfund financed response, the lead agency must ensure that a program for occupational safety and health is made available for the protection of workers at the response site.

The EPA Occupational Safety and Health Manual, which is dated December 12, 1984, identifies the responsibilities for field implementation of worker safety under CERCLA. Specifically, it identifies the responsibilities in the area of worker safety of EPA's lead officials at Superfund sites. We call them the onscene coordinator for emergency releases, or the remedial project manager for uncontrolled hazardous waste sites.

Specifically, these agency officials must develop site safety plans, which are then made available to all employees participating in the response. The plans must address the levels of personal protection required, and safe worker practices and other controls on sites.

In addition, these officials must assure that participating employees are trained and informed of the hazards associated with the response before they are allowed to work onsite, and that EPA employees are included in the EPA Occupational Medical Monitoring Program and have undergone a baseline medical examination.

Several other tasks are also under the onscene coordinator or remedial project manager's responsibility, including arranging for immediate medical attention for any incident, correcting work errors and conditions that may result in injury or exposure, and informing non-EPA employees of the onsite hazards and measures to assure a safe and healthful working environment.

We provide a good deal of technical assistance in worker safety under CERCLA. In order to ensure consistency in the implementation of the latest state of the art in safety practices, EPA has developed several technical documents, including standard operating safety guides, and field standard operating procedures—and also, several fact sheets dealing with areas such as protective clothing, respiratory protection, and testing.

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The standard operating safety guides address the zones of contamination at a site, the type of personal protective equipment that is required for each operation onsite, the method and frequency of error monitoring and the method and location of personnel and equipment decontamination. Additional information is presented in the field standard operating procedures.

Currently, field standard operating procedure No. 7, which is called decontamination of response personnel, is being distributed to field personnel, and there are a number of other operating procedures currently under development dealing with site entry, error monitoring, site safety plans, work zones, and drum opening.

Chapter 9 of EPA's Occupational Safety and Health Manual, which deals with hazardous substance responses, describes the Agency's program to provide healthful working conditions for EPA employees at hazardous waste sites. This chapter of the manual states the Agency policy, and identifies the key responsibilities, requirements and procedures necessary to meet the objectives of the program.

One of the key provisions of the program is mandatory safety training, consisting of supervised field experiences, as well as classroom training Mr. Dorrler spoke about a second ago.

These are required before an EPA employee can work at a hazardous waste site. The Occupational Safety and Health staff, represented by Mr. Magor here today, has involved NIOSH under a separate interagency agreement, to review field site programs in order to evaluate compliance with our own internal safety requirements.

EPA is responsible for providing safe and healthful working conditions for its employees engaged in field activities in support of agency programs, and that includes environmental sampling, inspection of water in waste water treatment plants, and of course, hazardous materials spills and waste site investigations.

As we have mentioned, we provide specialized safety training for our personnel. In August of 1978 we identified the requirements for training of field employees.

We have trained, to date, over 1,000—we have trained over 1,000 employees annually, and we have subsequently promulgated order 1440.2, entitled "Health and Safety Requirements for the Employees Engaged in Field Activities," to provide our management with a clear-cut and firm basis for requiring their training.

The Agency also offers contractors and State personnel who participate in joint activities the opportunity to attend the courses presented for our own employees on a space-available basis.

The primary training effort under CERCLA is located within EPA's environmental response team, headed by Mr. Dorrler. As Mr. Dorrler indicated, since 1979, we have presented seven courses, or a modification of them, over 239 times.

Of the seven primary courses, five relate directly to workers' health and safety at hazardous waste sites. Two courses indirectly deal with health and safety, as they consist of sampling of hazardous materials and of incident mitigation and treatment methods.

Over 6,000 students have attended the ERT courses, including employees of EPA, other Federal agencies, State and local governments and industry.

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In addition, EPA has provided copies of its program documents and training requirements to numerous contracting firms and State offices for assistance in developing their own programs.

I would now like to talk just briefly about our cooperation with other agencies in providing for worker health and safety at Superfund sites.

EPA has entered into a memorandum of understanding with OSHA, NIOSH, and the Coast Guard to provide worker protection guidance. The first product of the MOU is a worker safety bulletin prepared for waste site workers with limited formal education.

The MOU work group also studied hazardous waste site worker health and safety and provided recommendations which are included in the revised national contingency plan.

The work group concluded that the greatest employee safety and health protection currently available can best be provided by OSHA's applying its safety and health regulations to hazardous substance response activities.

The work group recommended that this approach be supplemented by the technical advice and assistance of qualified Government and nongovernment personnel, as needed, and by the comprehensive training of workers and supervisors involved in response actions.

The work group is preparing, as discussed earlier, an occupational safety and health guidance manual for Superfund activities. The manual will provide Government agency and private organization officials with the best information the four agencies have available on the subject of protecting workers involved in response actions.

We believe that the work group's conclusions are sound as they apply to CERCLA response actions involving private-sector employees and working conditions covered by the Occupational Safety and Health Act.

On December 30, 1983, the Assistant Secretary of OSHA released guidelines to provide direction for OSHA field staff who may be called upon to provide technical assistance or conduct enforcement activities at Superfund sites.

We were involved in reviewing those instructions. OSHA and EPA agreed that OSHA has the lead role in providing the safety and health of workers at hazardous waste sites. OSHA regional office, technical staff, and members of the OSHA health response team provide the main sources of onsite or offsite health and safety advice, and consultation to employees and contractors who are performing activities at Superfund sites.

Because hazardous waste sites may be significantly different from most industrial sites, OSHA compliance officers are required, themselves, to complete a 1-week training course before undertaking any onsite inspection activity.

At this time, the required training must include EPA's hazardous materials incident response operations course, which is held at the facility in Edison, NJ.

Activities of personnel from the OSHA health response team associated with hazardous waste site investigations receive reimbursement from the Superfund Program. This includes travel that is taken exclusively to perform Superfund site investigations, and

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any supplies or equipment purchased to fulfill OSHA responsibilities.

This concludes my formal testimony, and we would be happy to answer any questions. In addition, I believe we have a couple of items that we would like to provide for the record.

[The prepared statement of Stephen A. Lingle follows:]

PREPARED STATEMENT OF STEPHEN A. LINGLE, DIRECTOR, HAZARDOUS RESPONSE SUPPORT DIVISION, ENVIRONMENTAL PROTECTION AGENCY

I am Stephen A. Lingle, Director of the Hazardous Response Support Division at the U.S. Environmental Protection Agency (EPA). I am responsible for a broad array of activities supporting the clean-up of uncontrolled hazardous waste sites under the Superfund program. I am pleased to be here to discuss the respective roles and responsibilities of EPA and OSHA for the health and safety of workers employed at hazardous waste sites. With me today is Mr. Robert Magor, Director of EPA's Office of Occupational Health and Safety Staff. Mr. Magor is available to answer questions on the Agency's occupational safety and health programs. Also with me is Mr. Steve Dorrler, Chief of the Agency's Environmental Response Team in Edison, New Jersey. Mr. Dorrler is available to answer questions on the hazardous incident response safety training programs.

EPA REGULATIONS AFFECTING WORKER SAFETY UNDER CERCLA

CERCLA's mandate to protect health and welfare is not limited to the confines of the uncontrolled hazardous waste site or the immediate area of an emergency episode. Specific responsibilities for worker health and safety are spelled out in the National Contingency Plan (NCP), Section 300.38—Worker Health and Safety.

The NCP is presently undergoing some revision. Under the proposed NCP all response activities are required to meet the standards of the Occupational Safety and Health Act of 1970 and the laws of States with plans approved under Section 18 of the OSH Act. Federal OSHA requirements include all OSHA General Industry (29 CFR Part 1910), Construction (29 CFR Part 1926), Shipyard (29 CFR Part 1915), and Longshoring (29 CFR Part 1918) standards. The proposed NCP also states that all governmental agencies and private employers are directly responsible for the health and safety of their own employees. Under a Federal fund financed response, the lead agency must assure that a program for occupational health and safety is made available for the protection of workers at the response site.

FIELD IMPLEMENTATION OF WORKER SAFETY UNDER CERCLA

The lead EPA official at an uncontrolled hazardous waste site is the Remedial Project Manager (RPM), and at an emergency release of hazardous chemicals the official is the On-Scene Coordinator (OSC). The EPA Occupational Health and Safety Manual, dated 12 Dec. 1984, identifies the OSC's/RPM's responsibilities in the area of worker safety. Specifically, these Agency officials must develop site safety plans which are then made available to all employees participating in response. These plans must address levels of personnel protection required and safe worker practices and other controls on site. In addition, the OSC's/RPM's must assure that participating employees are trained and informed of the hazards associated with the response before they are allowed to work on site and that EPA employees are included in the EPA Occupational Medical Monitoring Program and have undergone a baseline medical examination. Several other tasks are also under the OSC's/RPM's responsibility, including arranging for immediate medical attention for any incident, correcting work errors and conditions that may result in injury or exposure and informing non-EPA employees of the on-site hazards and measures to assure a safe and healthful working environment.

TECHNICAL ASSISTANCE IN THE AREA OF WORKER SAFETY UNDER CERCLA

In order to ensure consistency in implementation of the latest state of the art in safety practices, EPA, through the Office of Emergency and Remedial Response's Environmental Response Team has developed several technical documents including "Standard Operating Safety Guides," "Field Standard Operating Procedures" and several Fact Sheets dealing with protective clothing, respiratory protection and testing. The "Standard Operating Safety Guides" address the zones of contamination, the type of personal protective equipment required for each operation on site, the

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method and frequency of air monitoring and the method and location of personnel and equipment decontamination. Additional information is presented in the Field Standard Operating Procedures (FSOP's). The objective of the FSOP's is to minimize the risk of exposure to hazardous substances. The procedures are derived from the "Standard Operating Safety Guides," but these versions of the Guides are in a format that is more appropriate for field use.

Currently, FSOP No. 7.—*Decontamination of Response Personnel*, is being distributed to field personnel. Currently under development are FSOP's concerning site entry, air monitoring, site safety plans, work zones and drum opening.

SAFETY REQUIREMENTS FOR EPA PERSONNEL

EPA's Occupational Health and Safety Manual Chapter 9, "Hazardous Substances Responses," describes the Agency's program to provide healthful working conditions for EPA employees at hazardous waste sites. This manual chapter states Agency policy and identifies the key responsibilities, requirements, and procedures necessary to meet the objectives of this program. One of the key provisions of this program is mandatory safety training, consisting of supervised field experiences as well as classroom training, before an EPA employee can work at hazardous waste sites. The Occupational Health and Safety Staff has involved NIOSH, under a separate interagency agreement, to review field site programs in order to evaluate compliance with our own internal safety requirements.

SAFETY TRAINING OF EPA FIELD PERSONNEL

The Environmental Protection Agency is responsible for providing safe and healthful working conditions for its employees engaged in field activities in support of the Agency's programs. EPA defines activities as program activities conducted by EPA employee outside of EPA administered facilities. These activities include environmental sampling, inspection of water and wastewater treatment plants and hazardous materials spills and waste site investigations.

EPA provides specialized safety training for its field personnel. In August of 1978, EPA identified the requirements for training of field employees. Since that time, the Agency has aggressively pursued the development and conduct of training courses in this area. Over a thousand employees are trained annually. Subsequently, EPA promulgated order 1440.2 titled "Health and Safety Requirements for the Employees Engaged in Field Activities" to provide management with a clear cut and firm basis for requiring training. Because training for field activities was a new and evolving area for EPA, the Agency offered contractors and State personnel who participating in joint activities the opportunity to attend courses presented for our employees on a space available basis. We continue to do this some six years later.

The primary training effort under CERCLA is located within EPA's Environmental Response Team. In addition to the ERT efforts, hazardous site training is also provided by OERR's Emergency Response Division and Hazardous Site Control Division. EPA Regional Offices, as well as EPA's Occupational Health and Safety Staff, also furnish training.

Since August, 1979, the ERT has presented seven courses or a modification of them over 239 times. Of the seven primary courses, five relate directly to hazardous waste sites worker's health and safety. Two courses indirectly deal with health and safety, as they consist of sampling of hazardous materials and incident mitigation and treatment methods. Over 6,079 students have attended ERT courses. Most of these students can be subdivided into the following four areas:

EPA	1,166
Other Federal Agencies	1,182
State/Local Government	3,072
Industry/Consultants	610

A detailed description of the seven courses presently offered by the ERT is in the attachment entitled "Technical Support in the Area of Worker Safety."

Moreover, EPA has provided copies of its program documents and training requirements to numerous contracting firms and State offices for assistance in developing their own programs.

INTERAGENCY COOPERATION

EPA has consistently played an assertive role in ensuring the health and safety of hazardous waste workers. Within weeks of the passage of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), EPA entered into a

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Memorandum of Understanding with OSHA, NIOSH, and the U.S. Coast Guard to provide worker protection guidance. The first product of the MOU was a worker safety bulletin prepared for waste site workers with little formal education. The MOU Work Group also studied hazardous waste site worker health and safety and provided recommendations which comprise the new § 300.38 of the revised National Contingency Plan.

The work group concluded that the greatest employee safety and health protection currently available can best be provided by OSHA's applying its safety and health regulations to hazardous substance response activities. The work group recommended that this approach be supplemented by the technical advice and assistance of qualified government and non-government personnel as needed, and by the comprehensive training of both workers and supervisors involved in hazardous substance response actions.

The work group is preparing an "Occupational Safety and Health Guidance Manual for Superfund Activities." This guidance manual will provide governmental agency and private organization officials with the best information that the four agencies have available on the subject of protecting workers involved in hazardous substance response actions.

EPA believes that the work group's conclusions are sound as they apply to CERCLA response actions involving private sector employees and working conditions covered by the Occupational Safety and Health Act (OSH Act 29 U.S.C. § 651 et seq.).

On December 30, 1983, the Assistant Secretary of Occupational Safety and Health (OSHA), Department of Labor, released guidelines to provide direction for OSHA field staff who may be called upon to provide technical assistance or conduct enforcement activities at Superfund sites. EPA's Office of Emergency and Remedial Response was involved in reviewing these instructions.

OSHA and EPA agreed that OSHA has the lead role in providing for the safety and health of workers at hazardous waste sites. OSHA regional office technical staff and members of the OSHA Health Response Team located at Salt Lake City, Utah, provide the main services of on-site or off-site health and safety advice and consultation to employees and contractors who are performing activities at Superfund sites.

EPA requests for OSHA safety and health technical assistance are made in writing giving all relevant information about the site activities. In the case of accidents, workers complaints, or referrals other than requests for technical assistance, the state OSHA office or DOL OSHA regional office, as appropriate, may be called in to perform normal compliance activities.

Because hazardous waste sites may be significantly different from most industrial sites, OSHA compliance officers are required to complete a one-week training course before undertaking any on-site inspection activity. At this time, the required training must include "EPA's Hazardous Materials Incident Response Operations" course which is held at the Agency's facility in Edison, New Jersey.

Activity of personnel from the OSHA Health Response Team associated with hazardous waste site investigations receives reimbursement from the Superfund program. This includes travel that is taken exclusively to perform Superfund site investigations, and any supplies or equipment specifically purchased to fulfill OSHA responsibilities during the site investigation.

This concludes my testimony. I would be happy to attempt to answer any questions that you may have at this time.

Mr. GAYDOS. Without objection, your statement as presented to the committee will be made in toto part of the record, so ordered. What else do you have there?

Mr. MAGOR. Well, one of the items we would like to add to the record is a memo that we sent to all of our field people announcing the availability of a microfiche medical records card available from the National Safety Council.

We have found these to be invaluable as a small card which contains a person's medical history, which he carries with him conveniently and which would be available upon entry to a hospital for any kind of emergency treatment the person my require.

Mr. GAYDOS. How many pages?

Mr. MAGOR. It is seven pages.

Mr. GAYDOS. Without objection, so ordered.

[The information follows:]

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460
November 22, 1982

OFFICE OF
ADMINISTRATION

MEMORANDUM

SUBJECT: Emergency Medical Information Cards

FROM: Elva W. Slagle
Safety Specialist
Occupational Health and Safety Staff (PM-273)

TO: Occupational Health and Safety Designees

I have attached a supply of medical information forms for interested employees to complete in order to receive a Medical Information Card. This is a pilot program. I recommend that employees who are involved in field work or who travel frequently be given preference in this initial part of the program because of the greater possibility that they will be either alone or among strangers if they suddenly become ill or involved in an accident and can not communicate, possibly delaying needed medical treatment.

Interested employees should complete the form (if employees wish the information to be confidential the form should be placed in a sealed envelope with their name and location on the outside) and either give it to you to send to me or send it to me directly. All the EPA employee forms will be batched into the National Safety Council computer at one time for easy access and retrieval of information. The cards will be completed for each employee participating in the program and mailed back to me for distribution.

I have also attached copies of information regarding the cards to help you explain their benefits to employees in your area. I recommend that you participate in the program if you wish. I need the completed forms returned to me no later than December 22, 1982.

If you or employees in your area have any questions or you need more forms, please call me on FTS 382-3648.

Attachments

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ATTENTION:

Federal, State and Local Government Executives.

The National Safety Council Medical Information Card will be in growing use throughout the United States commencing in 1982.

The card contains detailed medical, personal, emergency and other critical information including emergency on-site treatment and surgical authorizations. The information is on microfilm which can be easily read through the built-in lens by merely bending the card, looking through the lens at the microfilm against any light source.

Once the person involved is actually at the medical facility, the microfilm can be used to generate hard copy through commercially available microfilm readers.

If you have emergency medical personnel, police and fire fighting organizations within or under your jurisdiction, the page facing this explanation has been designed for your use. The page to your right has been developed so that it can be copied using most, if not all, copying machines so that the page can be reproduced at minimum cost and distributed to emergency facilities, police and fire facilities and other organizations charged with the delivery of emergency medical care.

The National Safety Council Medical Information Card has the potential to save lives and unnecessary trauma in all emergency situations.

There are a series of options available to Federal, State and Local Government agencies and departments in making the National Safety Council Medical Information Card available to their employees and their families. The options largely involve communicating and/or distributing the medical information form which is microfilmed and bonded into the actual card.

The NSC Card is being offered to the general public at a unit price in excess of ten dollars. The options mentioned above contain substantial unit card savings based on volume orders.

Please contact Government Executive Magazine for details and a sample card on agency or department letterhead. The emergency information on the card can be read, on site, without the use of any microfilm reading equipment, by personnel rendering first aid or more complex medical relief.

Government agencies also have the opportunity to add other micrographics to the card for their own purposes (See Government Executive, November, 1981).

All requests for information should be sent, on agency or department letterhead to:

Government Executive
Suite 612
1725 K Street N.W.
Washington, D.C. 20006

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Should Everyone Carry Medical Information?

New card uses microfilm and built-in lens to provide detailed data.

CAN a piece of "jewelry" or a plastic card save your life?

It just may, if the "jewelry" is engraved with vital medical information or if the card has a unique microfilm strip with a built-in lens. Both are innovations in identification that enable medical personnel or emergency rescuers immediately to know critical lifesaving information such as drug allergies or a heart condition.

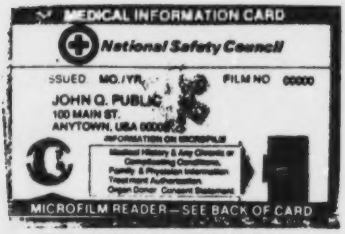
For many years, the American Medical Association has strongly advocated that each American carry on their person some type of medical information. During 1964 standards were established by the AMA to achieve these ends. There was a distinction made between general medical information and emergency medical information. It is estimated that 20 per cent of Americans have special medical conditions that must be known in an emergency, but that may go unrecognized unless there is some type of easily seen identification. The AMA recommended that the emergency information be worn in some manner around the neck or wrist. The availability of other more general information identifying the individual, where to locate next of kin, as well as other medical information, was also stressed for those not having a known specific problem.

The Medic Alert Foundation International of Turlock, CA, is one such organization that provides emergency medical information. A non-profit organization, it was established in 1956 by a physician after his own daughter nearly died as a result of an allergic reaction to a medication. Medic Alert supplies an engraved metal emblem, worn as either a necklace or bracelet, that lists vital medical problems that must be known in an emergency. The AMA has established training standards for those providing emergency medical services to search for, and recognize this "lifesaving jewelry." There is also a wallet card, updated yearly, and a 24-hour toll-free emergency phone service that connects with an operator who can relay vital information about the patient from a computerized data bank. This kind of service won endorsements from groups such as the American Hospital Association, and the American College of Emergency Physicians.

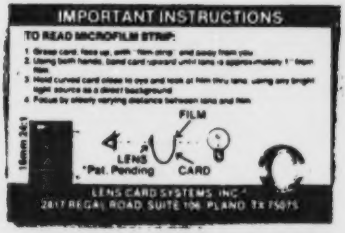
Now, the National Safety Council has introduced the Council's Medical Information Card designed along the lines of the AMA's recommendation that all Americans carry some type of medical information that can be used if a person is, perhaps, unconscious or unable to talk. The card is unique in that a large amount of information can be put on the microfilm strip and then, using a built-in lens, be instantly and easily readable whenever needed. The card can carry information regarding insurance, authorization for surgery, organ donation, as well as a host of other personal and vital statistics. It is even possible to include a baseline EKG. Many doctors find such a record useful when making a determination of possible heart problems. The card bends without breaking, is water resistant, heat resistant up to 300 F, and will last for years without replacement.

Industry applications

Companies can provide their employees with Medical Information Cards that do double duty as identification badges. And for employees who work with hazardous substances, or in a particularly high-risk area in a plant, the cards can be filled out with information about what to do in case of an accident in those areas. Whatever the safety needs of a company, the Medical Informa-



The front of the card immediately identifies you.



The back shows rescuers how to use the new lens.

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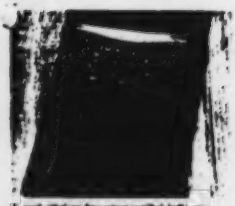
Medic Alert tags are silver and red, warning rescuers that the wearer has a specific condition.

Nurse Joanne Comyn folds the card to read the microfilm file.



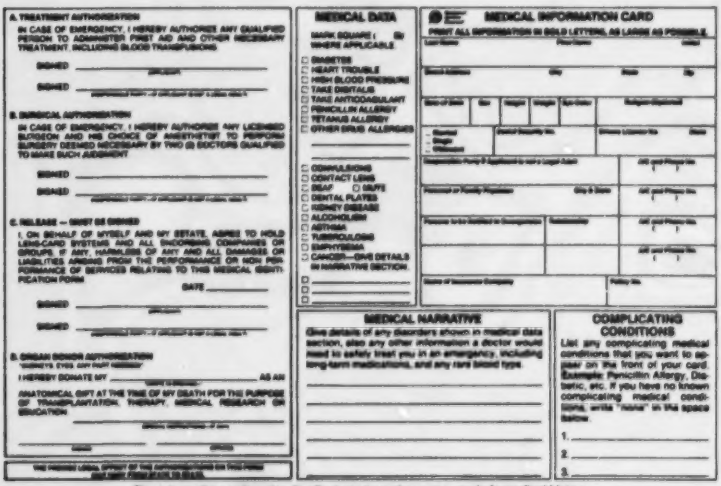
A red sticker for your wallet tells rescuers to read the card.

tion Card can be tailor-made to meet those needs.

By providing workers with cards that can be used both on and off the job, employers will be giving their workers that extra margin of safety that may help reduce lost-time accidents and will reinforce the employees' assurance of their company's concern for them.

During the National Safety Congress in Chicago, a special booth will be set up to introduce the complete package of medical information devices available to Council members and other attending delegates. Sample cards and brochures will be available and delegates will be encouraged to consider this program as a valuable addition to any on, or off, the job safety program. Hopefully, through the help of the Council members, carrying personalized medical information will soon become commonplace for all Americans. This is one more way to spread safety-consciousness to all facets of our lives.

The Membership Service Department of the National Safety Council maintains a toll-free line for information on orders and other services. If you want to learn more about the Medical Information Card program, and how you can make it work for you, call 800-621-8051. Call today. The life you save may be your own. Ω



A. TREATMENT AUTHORIZATION

IN CASE OF EMERGENCY, I HEREBY AUTHORIZE ANY QUALIFIED PERSON TO ADMINISTER FIRST AID AND OTHER NECESSARY TREATMENT, INCLUDING BLOOD TRANSFUSIONS.

SIGNED _____

SIGNED _____

B. SURGICAL AUTHORIZATION

IN CASE OF EMERGENCY, I HEREBY AUTHORIZE ANY LICENSED SURGEON AND HIS CHOICE OF ANESTHETIST TO PERFORM SURGERY DEEMED NECESSARY BY TWO (2) DOCTORS QUALIFIED TO MAKE SUCH JUDGMENT.

SIGNED _____

SIGNED _____

C. RELEASE — MUST BE SIGNED

I, ON BEHALF OF MYSELF AND MY ESTATE, AGREE TO HOLD LENS-CARD SYSTEMS AND ALL ENDORSING COMPANIES OR GROUPS, IF ANY, HARMLESS OF ANY AND ALL DAMAGES OR LIABILITIES ARISING FROM THE PERFORMANCE OR NON PERFORMANCE OF SERVICES RELATING TO THIS MEDICAL IDENTIFICATION FORM.

DATE _____

SIGNED _____

SIGNED _____

D. ORGAN DONOR AUTHORIZATION

I HEREBY DONATE MY _____ AS AN ANATOMICAL GIFT AT THE TIME OF MY DEATH FOR THE PURPOSE OF TRANSPLANTATION, THERAPY, MEDICAL RESEARCH OR EDUCATION.

_____ _____

MEDICAL DATA

MARK SQUARE ( ) BY WHERE APPLICABLE

- ☐ DIABETES
- ☐ HEART TROUBLE
- ☐ HIGH BLOOD PRESSURE
- ☐ TAKE DIGITALIS
- ☐ TAKE ANTICOAGULANT
- ☐ PENICILLIN ALLERGY
- ☐ TETANUS ALLERGY
- ☐ OTHER DRUG ALLERGIES

_____

_____

- ☐ CONVULSIONS
- ☐ CONTACT LENS
- ☐ DEAF ☐ MUTE
- ☐ DENTAL PLATES
- ☐ KIDNEY DISEASE
- ☐ ALCOHOLISM
- ☐ ASTHMA
- ☐ TUBERCULOSIS
- ☐ EMPHYSEMA
- ☐ CANCER—GIVE DETAILS IN NARRATIVE SECTION.
- ☐ _____
- ☐ _____
- ☐ _____

MEDICAL INFORMATION CARD

PRINT ALL INFORMATION IN BOLD LETTERS, AS LARGE AS POSSIBLE.

Last Name _____ First Name _____ Initial _____

Street Address _____ City _____ State _____ Zip _____

Date of Birth _____ Sex _____ Height _____ Weight _____ Eye Color _____ Religion (Optional) _____

Blood Type: ☐ Normal ☐ Diagn. ☐ Unknown

Social Security No. _____ Drivers License No. _____ State _____

Emergency Phone & Signature to call in Legal Case: _____ Alt. and Phone No. _____

Personal or Family Physician _____ City & State _____ Alt. and Phone No. _____

Persons to be Notified in Emergency _____ Relationship _____ Alt. and Phone No. _____

_____ _____ Alt. and Phone No. _____

Name of Insurance Company _____ Policy No. _____

MEDICAL NARRATIVE

Give details of any disorders shown in medical data section, also any other information a doctor would need to safely treat you in an emergency, including long-term medications, and any rare blood type.

_____

_____

_____

_____

_____

_____

COMPLICATING CONDITIONS

List any complicating medical conditions that you want to appear on the front of your card. Example: Penicillin Allergy, Diabetic, etc. If you have no known complicating medical conditions, write "None" in the space below.

1. _____
2. _____
3. _____

The information on the microfilm file in each card covers a carrier's medical history and authorizes any emergency medical treatment needed.

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Here's Your **National Safety Council** Medical Information Card . . .

. . . the card that speaks for you, when you can't !

Please read carefully

1 Check your card by reading it according to directions on back of the card. The microfilm information should be sharp and easy to read. If the lens won't focus on the microfilm, make sure the plastic lamination, which should have been cut and removed from both sides of the lens area during manufacture, is not stuck over the lens. If necessary, carefully remove the small disk(s) or extra plastic with your fingernail or a knife. Should your card in some way be faulty, return it to us for a free replacement.

2 The lens is optical-quality plastic and, like eyeglasses, will scratch. While the microfilm can be read even with a scratched lens, avoid sandwiching it between credit cards, as this can scratch the lens severely.

3 If your medical or personal information changes, be sure to order an updated card. You can temporarily update your own card by writing new information on a small piece of paper and attaching it to your card with transparent tape. Do not cover the lens or microfilm strip.

4 The enclosed pressure-sensitive stickers are to alert emergency personnel that you're carrying a National Safety Council Medical Identification Card. Attach them to your driver's license, windshield, steering column, wallet, etc. Some states regulate where stickers can be placed. Be sure to comply.

NATIONAL HEALTH AND SAFETY AWARENESS CENTER P. O. BOX 3042 RICHARDSON, TX 75080-0570

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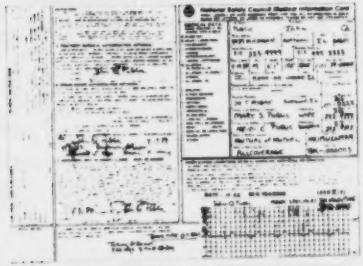
WHO SHOULD CARRY EMERGENCY MEDICAL IDENTIFICATION?

The American Medical Association says, "**Everyone!** Emergency medical identification is useful in identifying an ill or injured person, in helping to locate family, friends and personal physician, and in providing information that will improve emergency care."

Most people think that a serious accident will never happen to them. Unfortunately accidents can happen to anyone. And 1 of every 4 of us will have one this year. It's only a matter of time.



Please print all information legibly in black ink (bold letters - as large as possible)

Medical professionals at the scene of an accident or in an emergency ward must treat you even though they have no knowledge of your medical history. Minutes - even seconds - count. Tragic, even fatal mistakes can be made in an emergency without proper identification information.

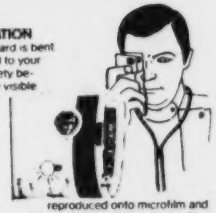
If you, or someone close to you, were to experience a sudden accident or illness and could not communicate because of unconsciousness, shock, delirium, hysteria, language barrier, or loss of speech - how could you supply needed medical and personal information to those attempting to assist you?

Here is the way **IT IS THE NATIONAL SAFETY COUNCIL MEDICAL INFORMATION CARD... THE CARD THAT SPEAKS FOR YOU... WHEN YOU CAN'T.**

The American Medical Association also recommends that persons with health problems requiring special attention in an emergency also should have an immediately recognizable signal device about the wrist or neck to indicate this need. The signal device should be worn at all times.

INSTANT VITAL INFORMATION

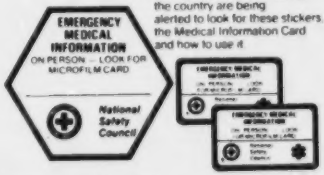
When the flexible card is bent (U shape), data vital to your own health and safety becomes immediately visible to the reader.



The life saving Medical Information Card contains your medical history reproduced onto microfilm and permanently sealed in plastic. Also sealed into this card is a powerful reading lens.

Beyond blood type, medicine allergy information, pre-existing conditions, family and doctor's names and addresses and phone numbers, the microfilm file also provides sections for heart conditions and EKG data if necessary, organ donor information and more. It is all there, just in case.

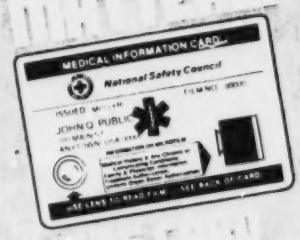
Emergency personnel across the country are being alerted to look for these stickers, the Medical Information Card and how to use it.



EMERGENCY STICKERS

In addition to the Card, you will receive 3 bright red self-adhesive emergency stickers designed to alert rescuers – doctors, paramedics, police, fire fighters – to the fact that you are carrying medical information identification. The stickers can be affixed to wallets, driver's licenses, a child's backpack, etc., and to the windshields of motor vehicles.

Ordering, payment and mailing instructions are explained in the "Instructions" Section on other side of this form. Note: Payment must accompany application.



THIS CARD COULD SAVE YOUR LIFE!

Every year, 1 out of 4 Americans suffers an accidental injury. 105,000 die and 360,000 are permanently disabled. And these numbers don't include those struck by sudden illness!

Dear Friend

In this country serious accidents and sudden illness claim innocent victims virtually every minute. Many of these traumas present significant problems to the doctors, nurses and other emergency personnel who attempt to treat the victim. If the individual is alone and cannot communicate because of unconsciousness, shock, delirium, hysteria, loss of speech, language barrier, etc., then the fast, effective delivery of medical care faces its greatest obstacle.

The medical professionals involved – be they ambulance attendants, paramedics, police or physicians – must begin treatment. And they must begin even though they have absolutely no knowledge of the individual's medical history.

Minutes – even seconds – count... tragic, fatal mistakes can be made in an emergency without proper information. Permanent disabilities, unnecessary suffering and even death, could be avoided if the victim was carrying readily recognizable emergency medical identification information on their person.

Now there is a way to give rescuers the vital medical information needed even if you can't speak for yourself. It is the National Safety Council Medical Information Card... the Card that speaks for you... when you can't!

The revolutionary Medical Information Card is a plastic, wallet-size identification card. It contains your most essential medical and personal information on a piece of microfilm that's permanently sealed in the Card. This data is instantly readable through the powerful magnifying lens embedded in the Card. Rescuers just bend the Card in a U-shape, hold it up to a light, and know who you are and how to help you! In addition, most hospitals are equipped to read and print out the information contained on the microfilm in this Card.

Beyond blood type, medicine allergy information, pre-existing conditions, family and doctor's names, addresses and phone numbers, the microfilm file also provides sections for heart conditions and EKG data if necessary, organ donor information and more. It is all there, just in case.

Even persons in perfect health benefit from the Card, not just because it is such complete identification, but if a person is normal and healthy, with no restrictions, it tells doctors that treatment can be administered at once without fear of adverse side effects.

I urge you to give yourself and your loved ones the peace of mind and security a Medical Information Card can provide. Feel safe knowing that, tucked away in your wallets are Cards that could save you, your spouse, parents and children from unnecessary trauma, suffering and delays when minutes matter most.

Enjoy a safe and healthy life.

Sincerely,

Vincent L. Tofany

Vincent L. Tofany
President
National Safety Council

Mr. GAYDOS. Any other items?

Mr. MAGOR. That is all I have.

Mr. DORRLER. We have some extra copies of the standard operating safety guides, which could be distributed. This is the field-oriented material.

Mr. GAYDOS. All right, we will make that note in the record, and those reading the record, hopefully, will avail themselves of those items.

Mr. DORRLER. Yes. Additional copies can be obtained by writing to Mr. Lingle.

Mr. GAYDOS. Thank you, that is very kind.

Mr. DORRLER. We also have a copy of the field standard operating procedures on decontamination of personnel. Additional copies can be obtained by writing to us, and a brochure describing the functions of my group, the Environmental Response Team.

Mr. GAYDOS. All right, those items I have properly noted in the record, and hopefully those reading the record will take advantage of this.

I have a couple of questions for you, Director. When you develop a site safety plan, I have to presume that starting with some general principles, each plan is developed individually, is that right?

Mr. LINGLE. Yes. Each plan is developed individually, and I will let Mr. Dorrler explain the details of that.

Mr. DORRLER. We have a generic site safety plan which is a form. There are two forms we can use for the relatively straightforward approach. It is about a two-page form. For more difficult one, it is about a half a dozen pages. The onscene coordinator or the remedial project manager merely fills out the information that is obtained on-site and through historical records.

The plan is then available at the site and must be gone over with all people working on the site. It describes such things as the various levels of contamination or zones of contamination, it identifies the decontamination procedures, the location of equipment, air monitoring, medical monitoring, location of medical assistance, et cetera.

Mr. GAYDOS. Those almost take on the nomenclature of a standard. Do you say that almost, say, the minimum requirements for a standard are included in some of those——

Mr. DORRLER. The standard for operations at a site? Yes, sir.

Mr. GAYDOS. Comes darned close to a standard, doesn't it?

Mr. DORRLER. Yes.

Mr. GAYDOS. That brings me up to this question. In your opinion, would it be feasible for OSHA to adopt EPA standards intact, and have them apply to those workers cleaning up toxic waste sites?

Do you think have you gone far enough to date, based upon your experience and information you have compiled? Do you think OSHA could step right in and adopt them and have some practical, technical use for them?

Mr. MAGOR. I will answer a portion of that and——

Mr. GAYDOS. Your answer has to be self-serving, but——

Mr. MAGOR. It is my understanding that OSHA can enforce any state-of-the-art standards that exist, whether or not they are OSHA standards are not. And I believe the standards that Steve has de-

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scribed are state-of-the-art standards enforceable by OSHA at EPA-controlled sites.

Steve, would you confirm that?

Mr. DORRLER. When OSHA comes out, one of the first things they look at is the site safety plan, and see if it is being complied with.

As far as enforcement on that side, that is an OSHA responsibility which we don't presume to undertake. We have to have the material for our own workers and for our own contractors, and we are not in the enforcement business for worker health and safety, that is OSHA's requirement. We are in the hazardous waste site clean-up business.

Mr. GAYDOS. I am impressed with your program as it relates to health and safety in the toxic waste sites area. I wonder if you could, very concisely for the record, describe the actual safety training program that EPA field employees go through.

What do they have to go through? Could you do that?

Mr. DORRLER. Well, my own employees——

Mr. GAYDOS. Besides swearing allegiance to secrecy.

Mr. DORRLER. My own employees are required to participate in that one course that we mentioned, the hazardous incident response operations course, as a minimum. We are then required to advance in levels of protection, meaning work at sites under the supervision of a more experienced person, where no respiratory protection is required. Then where respirators, air-purifying respirators are required, and then where self-contained breathing apparatus is required.

So we are advancing in the level of protection, hence, the level of hazard at a site, which we call on-the-job training. There is a certification program that is required, which is a combination of formal training, which includes the course we mentioned, plus first-aid and some other minor courses, and then in addition, a monthly review of equipment and a yearly, 8-hour refresher course.

Mr. GAYDOS. Let me ask you something. If I wanted to work for your agency, would I have to be a college graduate?

Mr. DORRLER. No.

Mr. GAYDOS. You have got a pretty stiff program there.

Mr. DORRLER. It is physically stiff, yes. You would have to be in good health, but——

Mr. GAYDOS. Mentally.

Mr. DORRLER. Well, no, we don't do mental examinations, no. Physical examinations are required, depending upon——

Mr. GAYDOS. Is OSHA trying to steal some of your employees after they go through that testing period, do they gravitate over to OSHA?

Mr. DORRLER. They don't tell me that. No, I don't think——

Mr. GAYDOS. I don't know if you would stand up under critical analysis, but from what it appears you are doing over there, you seem to be way ahead.

Of course you are, familiar with the training facilities operated by the International Union of Operating Engineers. How would you rate their operations, compared to your own training program?

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I would sure like to have as comprehensive a response as possible. How do they compare with you? Do they use your material? Do you help them? Or do they help you?

Mr. DORRLER. I have sent them copies of our training course. I have been contacted by them several times over the past few years to participate in the development of an agenda dealing with worker health and safety.

Unfortunately, it has not progressed to much further than that. I am not familiar with specific agenda at the facility in New Jersey, so I cannot really comment on that.

Mr. MAGOR. Could I add something at this point? When we set up our internal courses, we went to the experts, to the firefighters, to train EPA employees. A lot of our contractors are firefighters or were former firefighters who taught us how to use the self-contained breathing apparatus.

One of my staff members went to the Federal Emergency Management Agency, to their National Emergency Training Center in Emmitsburg, Maryland, and took the course on responding to incidences involving hazardous materials or pesticides.

So, we have—our first contact was with the experts, with the firefighters, to bring the programs into EPA, so there is a lot of material and a little of resources available to both of us.

Mr. GAYDOS. How about a general question? Those personnel that go through your training programs, are they the ones that are actually onsite, out in the field, or are they supervisors, or is there a combination?

Mr. DORRLER. The course material that we offer is for a variety of audiences. Some deal specifically with a group we call first responders, these would be firefighters, police, rescue squad people, and they are, of course, first responders. They are on site.

We also train technical people who would be onsite and in addition, we have some of our safety courses that are designed specifically for supervisory and management people.

So, we reach a very broad audience that way.

Mr. GAYDOS. I think I asked the question before, but does it bother you people at all that we have such a divergency—or do you see it as a divergency or a distinction between your agency and what OSHA is doing? I don't expect you to be critical of OSHA; it looks like you cooperate with them.

Do you find it disturbing when you have on site your people which you self-servingly say are pretty well-trained, and it appears that they are, and they have protective equipment, but somebody else is there in regular clothing breathing in fumes that your employee is protected from because he has a respirator or some other type of protective device?

Does that bother you, or do you——

Mr. MAGOR. My own opinion is yes, we find it very unconscionable on the part of that person's supervisor. It bothers us tremendously. It bothers us even more to see people issued equipment and contemptuous of it, not using it.

Mr. DORRLER. We saw photographs here five years ago at Chemical Control where the firefighter was not protected in wherever the sampler was. Several months ago, not years, but several months ago, I was on some fires in New Jersey, where the firefighters were

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issued respirator protection equipment and didn't wear it, and they were in the towers and on the buildings and on the ground, and they had the air packs on, and the face mask was here.

And we were asking them, why weren't you wearing it, because we were wearing ours, we were walking around taking samples, and I was wearing my equipment, and they said because they can't see, it gets in their way.

These are volunteers and I am the kind of person who gets emotional on Memorial Day when he sees guys walking by.

Mr. GAYDOS. Is that a volunteer or are they a paid fire company up there?

Mr. DORRLER. These particular fire fighters were volunteers, Mr. Chairman.

Mr. GAYDOS. Volunteers?

Mr. DORRLER. Mostly. But I don't know personally who covers these folks.

Mr. GAYDOS. Our Director raises a question maybe they weren't trained sufficiently to enable them to use the equipment properly.

Mr. DORRLER. I didn't ask them that. A lot of firefighters are trained in using it, and I think there are several problems associated with that. You have the volunteer fire companies, you have the professional paid firefighters, and then the labor unions are also—it is three different types of problems that have to be addressed.

Mr. LINGLE. I would think that use of respirators is one of the most basic and standard types of training that a firefighter would receive.

Mr. GAYDOS. Another question: You have listed, I imagine, for budgetary purposes and for practical purposes, all of the known sites that you feel should have your attention. Is it your feeling that there are an awful lot of sites that are not on that list that eventually will crop up, and you will discover?

Do you feel that that is an adequate—pretty accurate list, or do you feel like I feel, I have grave reservations. I feel there are so many sites out there that haven't been discovered, that are hidden.

For instance, a garage, a mechanic's garage. There has been a mechanic in an area for maybe 10 or 15 years, a small garage. It could be a very dangerous site, because he stores so many things over there, and he is loaded with PCB's and things like that.

And it wouldn't necessarily qualify under your criteria as to what constitutes an area that should be—that could use, legally and practically, Superfunds. Do you find that a concern at all?

Mr. LINGLE. Well, I guess this is an issue that is a little apart from worker safety and health, except that it perhaps deals with the number of sites where workers might potentially be exposed to these chemical substances, and it is certainly true that there are a number of potential incidences and locations where workers will be potentially exposed to hazardous chemicals that may not be Superfund sites and may not meet the criteria to be on the Superfund list.

There are various estimates of how large the ultimate list of potential Superfund sites could grow, and I don't presume to have the answer to that here today, or to really comment on that specifically, but it is certainly true that there are a number of—there are many potential locations and circumstances outside of the Super-

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fund Program where there is a very important issue of worker safety.

The kinds of hazards are very similar, but they are not really Superfund sites.

Mr. GAYDOS. I don't ask the question superfluously, there is a reason for it, and I am going to tell you why.

Because as long as you are doing such a fantastic job with existing Superfunds, there is a possibility that that fact was used, you know, to explain the long delay in establishing standards.

You see, they work together, they are interrelated, yet they are dependent upon each other. So we have that—let me ask you a practical question:

If a fire company is fighting a fire in this locality, and there are certain explosions and things that occur, you have this emergency response. You get calls from those people, and do you respond, and do they ask you, we supposedly have such-and-such identified, how do we put it out, water is not working. Are you active in that area?

Mr. DORRLER. We don't presume to know anything about fighting fires. We rely on the firefighters who are trained to do that.

Mr. GAYDOS. I hope so. You are super, but you are not that super.

Mr. DORRLER. Right. But we do, in fact, get calls through our regional teams for special assistance. EPA's 10 regions, get involved in fires from an environmental and health point of view, and my group also goes out.

Mr. GAYDOS. Well, how do you justify that? Is that the service in the purview of your agency? Or is it extra? Is that sharing information on a voluntary basis? How does that work?

Mr. DORRLER. The Superfund law provides——

Mr. GAYDOS. What if some guy is drinking over there and he gives the guy wrong information, and it doesn't work? And some catastrophe occurs, and some smart attorney gets a hold of things, and he is going to sue everybody and anything. I mean, what about that?

Mr. DORRLER. The Superfund law provides resources not just for listed hazardous waste sites, but also for removal operations, which are not necessarily listed hazardous waste sites.

Mr. GAYDOS. I plead ignorant to the ramifications of the law.

Mr. DORRLER. Train derailments, fires, truck accidents, and classical disaster-type situations also come under the purview of CERCLA. So we do have an official responsibility to be onsite at these kinds of incidents, provide monitoring, site safety, advice and consent.

Mr. GAYDOS. All right, I guess that is all the questions I have. Counsel, I think you wanted to ask one?

Mr. MORGRET. Not of these witnesses, Mr. Chairman, thank you. Maybe the next witness.

Mr. GAYDOS. I want to thank you for your appearance, and we will have you back again, because you are very interesting. I have one parting shot:

As far as what you have done to date, and I am not going to ask you about how internal secrecy occurs, but have you or have you not been talking with OSHA and maybe representatives from OSHA, telling them about all these things you already have, and man-hours you have expended, 5 years in developing some of these

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things that are so close to being standards, that could feasibly be standards with a little bit of dressing up, do you guys cooperate like that with OSHA, or is anybody talking?

Would that be talking out of school?

Mr. MAGOR. Oh, no, no, we absolutely do cooperate with OSHA. The memo of understanding that the AFL-CIO referred to brought OSHA, EPA, NIOSH and the Coast Guard into a very, very close cooperative agreement.

We are copartners in all of this. We work very closely together, and we would like it to be very public knowledge that we are doing this.

Mr. DORRLER. In addition, under the national contingency plan, there is established a national response team, which is here in Washington. It is participated in by OSHA, EPA and other agencies; regional research team, which OSHA is a partner with EPA and Coast Guard and other Federal agencies, and the State representatives; and on a technical basis, we are constantly in communication with their health response team in Salt Lake City, and in fact, we do the training that they are required to have for their own folks in our Edison corps, so both professionally and technically, we are in close cooperation with OSHA.

Mr. GAYDOS. Mr. Director, let me very quietly point out that your up-front team is very impressive, and I hope that permeates your whole agency and its activities. Thank you for a good statement, and thanks for being here

Mr. LINGLE. Thank you very much.

Mr. GAYDOS. Now I call Mr. OSHA himself, Mr. Miles. How many times have you been here before our committee?

STATEMENT OF JOHN B. MILES, DIRECTOR OF FIELD OPERATIONS, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

Mr. MILES. I don't know, Mr. Chairman. I've forgotten.

Mr. GAYDOS. Good to see you.

Mr. MILES. Good to see you.

Mr. GAYDOS. Without objection, your statement, as prepared, will be made part of the record. Which one is it? You have a choice.

Mr. MILES. The corrected one, it is right.

Mr. GAYDOS. That is made part of the record, and you may proceed in the manner you have in the past, if you can sum up and then we can get to some questions.

Mr. MILES. OK, I would like to sum——

Mr. GAYDOS. Oh, I am going to give you a warning. Before, we said that counsel over here on your side has some questions, and he may be kind of rough on you, so——

Mr. MILES. OK, fine. I hope I am prepared.

Mr. GAYDOS. You usually are.

Mr. MILES. Thank you for the opportunity to discuss the role of the Occupational Safety and Health Administration at hazardous waste sites under the Superfund.

The Comprehensive Environmental Response, Compensation and Liability Act of 1980, CERCLA, known as the Superfund, authorizes the Federal Government to respond whenever any hazardous

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substance, pollutant or contaminant is released into the environment or whenever there exists a threat of such release.

The primary responsibility for administering the Superfund law rests with EPA and the Coast Guard.

OSHA had begun to work with EPA on issues involved in the cleanup of hazardous waste sites prior to the passage of CERCLA. Since 1979, OSHA has been a member of the interagency National Response Team which was established as part of the National Contingency Plan to respond to emergencies involving the release of pollutants into navigable waters.

The National Response Team is chaired jointly by EPA and the Coast Guard. The team's activities, in which OSHA continues to participate, were expanded by the Superfund legislation.

The National Contingency Plan has been revised, as the Superfund law required, to state that as a condition of any contract entered into under Superfund, all private contractors must conform to applicable provisions of the Occupational Safety and Health Act.

OSHA has entered into a memorandum of understanding with EPA, NIOSH and the Coast Guard undertaking joint development of guidelines for safe procedures in working with hazardous wastes. An interagency task group set up under the memorandum produced a pamphlet to assist employees at waste cleanup sites in preventing injuries and illnesses.

The pamphlet explains in a straightforward manner the ways employees can protect themselves, information that may seem obvious to some, but which is helpful to many employees who may not be aware of the potential hazards to which they are exposed.

Currently, the task group is working to develop a more comprehensive manual which is expected to be released in the near future.

Following EPA's publication of a national priorities list of 418 hazardous waste sites on December 30, 1982, OSHA began work on a field directive for enforcement activities at Superfund or other hazardous waste sites. This directive was issued on December 30, 1983.

The directive makes clear that OSHA will conduct technical assistance visits to Superfund sites at the request of EPA or another lead agency and will conduct enforcement visits upon referral by the lead agency, as well as in response to accidents and complaints.

The directive refers compliance officers to the Agency's existing general industry or construction standards. It states that engineering controls at hazardous waste dumps may not be feasible and the compliance officer should carefully examine hygiene facilities and practices, training programs, respirators and protective clothing and equipment for their effectiveness.

There is a fundamental difference, which the directive notes, between the applicability of OSHA health standards to traditional in-plant operations and the applicability of such standards to conditions at hazardous waste disposal sites.

The directive has been in effect for about a year and a half, and OSHA's compliance officers have been receiving training at EPA's Edison, NJ, training facility for somewhat longer, since August of 1983.

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In that time, more than 100 Federal and State compliance officers have been trained to respond to hazardous waste emergencies.

Since October 1, 1983, Federal and State OSHA compliance officers have conducted inspections at 59 hazardous waste sites, 17 of which were Superfund sites. Prior to that time, OSHA had conducted approximately 30 inspections at these sites.

Compliance officers, in the course of an inspection, review contractors' safety and health plans and provision of monitoring equipment, and they evaluate the use of personal protective equipment.

OSHA's Health Response Team, based at its Salt Lake City laboratory, is available for onsite or off-site technical assistance and consultation, as are specially trained regional staff.

A technical assistance visit by members of OSHA's Health Response Team to a Superfund site in Hyde Park, NY, illustrates the services the Agency can provide.

In this instance, which began in 1983, team members were able to give constructive advice on core-drilling operations and to contribute to EPA's recommendations for modifications in the site's general safety and health plan, and its air- monitoring and off-site contingency plans.

Since the Agency's statutory authority permits a response only to situations where employees are involved, it needs to be pointed out that in the last fiscal year, there were only about 300 Superfund sites where actual cleanup work occurred.

The issue of hazardous waste was made a major topic at the recent OSHA managers' planning conference. A number of recommendations concerning the Agency's policies for Superfund and other hazardous waste sites were developed by members of a special work group conducted at the conference.

Members of the workshop included, in addition to myself, the Director of Technical Support, three regional administrators and a number of other OSHA career managers.

Workshop participants considered the applicability of existing construction and general industry standards to hazardous waste sites, and concluded that they could provide an adequate basis for OSHA's effort to protect employees at these sites.

The group recommended that enforcement procedures for OSHA's standards for respirators be modified to facilitate enforcement of the provisions of this standard in an outdoor environment.

Based on the recommendations of the workshop as well as on OSHA's general field experience at hazardous waste sites, advice received from the Agency's Health Response Team, and information in NIOSH evaluations of safety and health conditions at active Superfund sites, OSHA will review its existing enforcement policies in this area.

Current OSHA procedures require that exposure levels above OSHA's permissible exposure limit for a toxic substance must be documented before a violation of the standard requiring personal protective equipment may be cited by OSHA.

Under the change being considered, OSHA would be able to enforce these standards at waste sites even in the absence of documented employee overexposure, thereby giving OSHA a method for dealing with the unknown.

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Another significant policy matter taken up by the participants at the OSHA Managers' Conference was whether the Agency's inspection-targeting system should be altered to provide for routine scheduling of inspections at hazardous waste sites, and the proper level of resources to devote to this sector.

The planning conference workshop recommended that an internal task force review the targeting issue. The results of an Idaho local emphasis program will be used to determine the resource needs.

The workshop also recommended that the Agency consider contracting with the States to conduct inspections at these sites as is now done for inspections of migrant farm labor camps.

Within the next few months, OSHA will develop and implement a computerized data base for hazardous waste activities. Among other things, the data base will contain information on applicable policies and procedures for making inspections and technical visits.

OSHA also intends to increase significantly the level of support it offers to the interagency national response team. Of particular importance to OSHA are the team's current plans to expand its activities to prevent and prepare for accidental releases of hazardous substances from chemical plants.

It is OSHA's belief that the prevention and preparedness work envisioned for the team can be an effective tool in mitigating chemical accidents. OSHA is looking to see what works best in adapting and modifying existing programs to address the problems of work place dangers at hazardous waste sites.

We are willing to listen to anyone with ideas and information to make the Agency's efforts more effective in this area.

Thank you.

[The prepared statement of John B. Miles follows:]

PREPARED STATEMENT OF JOHN B. MILES, DIRECTOR OF FIELD OPERATIONS, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

Mr. Chairman and members of the subcommittee, thank you for the opportunity to discuss the role of the Occupational Safety and Health Administration (OSHA) at hazardous waste sites under the Superfund program. I am John B. Miles, OSHA's Director of Field Operations.

THE SUPERFUND LAW

The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), also known as the Superfund law, was enacted on December 11, 1980. This law provides authority for federal action in response to releases of hazardous substances and for cleanup of inactive waste sites. The Superfund law authorizes the federal government to respond whenever any hazardous substance, pollutant, or contaminant is released into the environment or whenever there exists a threat of such release. The primary responsibility for administering the Superfund law rests with the Environmental Protection Agency (EPA) and the U.S. Coast Guard. The Executive Order implementing Superfund was issued on August 14, 1981, by Executive Order 12316.

Several provisions of the Superfund law either accord new responsibilities to OSHA or address the issue of occupational safety and health. For example, section 104(f) of CERCLA provides that contracts awarded under the law "shall require compliance with Federal health and safety standards established under section 301(f) of this Act. . . ." Section 104(i) establishes a new agency—the Agency for Toxic Substances and Disease Registry. It requires OSHA and other agencies to cooperate with the new federal entity in implementing the health related authorities of the Act.

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Section 111(c)(6), which authorizes the use of Superfund money for programs to protect employee safety and health, requires these programs to be developed jointly by EPA, the National Institute for Occuptional Safety and Health (NIOSH), and OSHA. The programs are to provide measures for identifying and assessing hazards of toxic substance removal, methods to protect workers from such hazards, and necessary enforcement and regulatory measures. OSHA was given further responsibility in section 301(f) to work with EPA, NIOSH, and the Department of Transportation in modifying the National Contingency Plan which has been drawn up under the 1972 Federal Water Pollution Control Act Amendments (or "Clean Water Law") to provide for the protection of the safety and health of employees involved in response actions.

IMPLEMENTATION OF THE LAW

OSHA had begun to work with EPA on issues involved in the cleanup of hazardous waste sites prior to the passage of CERCLA. Since 1979 OSHA has been a member of an interagency National Response Team which was established as part of the National Contingency Plan to respond to emergencies involving the release of pollutants (including oil and hazardous wastes) into navigable waters. The National Response Team is chaired jointly by EPA and the Coast Guard. The Team's activities, in which OSHA continues to participate, were expanded by the Superfund legislation.

As noted, the new law also required that the National Contingency Plan be revised and become the principal planning document for federal response actions under Superfund. This revision, which was published by EPA on July 16, 1982, included a provision stating that contractors must comply with OSHA requirements. On February 28, 1985, on the basis of recommendations by the National Response Team, EPA proposed a further revision of the National Contingency Plan, again stipulating that as a condition of any contract entered into under Superfund, all private contractors must "conform to applicable provisions of the Occupational Safety and Health Act."

On December 18, 1980, OSHA signed a Memorandum of Understanding (MOU) with EPA, NIOSH and the Coast Guard undertaking joint development of guidelines for safe procedures in working with hazardous wastes. An interagency task group set up under the Memorandum submitted recommendations for improvement of employee safety and health to the National Response Team for incorporation in the various revisions to the National Contingency Plan, including the revision currently underway.

The task group also produced a pamphlet to assist employees at waste cleanup sites in preventing injury or illness from exposure to, or contact with, the hazards they may expect to find at leaking waste dumps. The pamphlet explains in a straightforward manner the ways employees can protect themselves—information that may seem obvious to some, but which is helpful to many employees who may not be aware of the potential hazards to which they are exposed. More than 45,000 of these pamphlets have been distributed to interested parties since their publication in 1982. Currently, the task group is working with NIOSH, EPA and the Coast Guard to develop a more comprehensive manual that details findings from field experience, good work practices, prevention strategies, and protective measures for employees at hazardous waste sites. This document is in the process of final clearance and is expected to be released in the near future.

Following EPA's publication of a National Priorities List of 418 hazardous waste sites on December 30, 1982, OSHA began work on a Field Directive to describe in detail, for Agency compliance staff, the procedures to follow in providing technical assistance and conducting enforcement activities at Superfund or other hazardous waste sites. This Directive was issued on December 30, 1983.

In the Directive, OSHA acknowledges that while the lead agency in Superfund cleanup activities is EPA (or in some instances the Coast Guard), OSHA will take the lead role in providing for the safety and health of employees at hazardous waste sites. The Directive also makes clear that OSHA will conduct technical assistance visits to superfund sites at the request of EPA or another lead agency and will conduct enforcement visits upon referral by the lead agency, as well as in response to accidents and employee complaints.

The Directive refers compliance officers to the Agency's existing general industry or construction standards. It states that engineering controls at a hazardous waste dump may not be feasible and that compliance officers should carefully examine hygiene facilities and practices, training programs, respirators, and protective clothing and equipment for their effectiveness.

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There is a fundamental difference, which the Directive notes, between the applicability of OSHA health standards to traditional in-plant operations and the applicability of such standards to conditions at hazardous waste disposal sites.

The Agency generally sets permissible limits for workplace exposure to the most widely used industrial chemicals for which there is evidence of adverse health effects. There are more than four hundred such permissible exposure limits for chemical substances in OSHA's standards. Employers are required to comply with these limits through administrative or engineering controls if feasible and, if not, through a variety of means including personal protective equipment. One set of OSHA's standards for thirteen carcinogens does not establish permissible exposure limits, but requires in effect that these thirteen carcinogenic substances be used only in closed systems. It makes little sense in an outdoor setting to require closed systems or to apply the engineering control provisions of standards to enforce permissible exposure limits for chemical substances. Such approaches are not practical enforcement strategies for outdoor hazardous waste disposal sites where many substances that are stringently regulated by OSHA or banned by EPA have been deposited.

The Directive also calls compliance officers' attention to the general duty clause provisions of the OSH Act and advises use of the clause where there is no standard that applies to the particular hazard encountered. The General Duty clause—section 5(a)(1) of the Act—requires employers to furnish to each employee a place of employment free of recognized hazards. The clause is used by OSHA compliance officers to cite a hazard that is recognized, serious, and capable of correction by feasible means when where is no applicable standard.

Consultation and technical assistance are emphasized in the Directive. In many instances EPA or its site contractor may not know about all the substances present at the waste site or even the exact location of substances known to be there. Some of these sites existed long before medical and scientific research was able to identify such substances as potentially hazardous to humans or plant and animal life.

The Directive also allows States that operate their own federally approved job safety and health programs the option of relinquishing authority over Superfund sites to Federal OSHA. Such States must, however, continue to provide coverage of Superfund sites where cleanup is doen by state or local government employees and must cover all hazardous waste sites which EPA has not designated as Superfund sites. Twenty-one States and two jurisdictions currently administer the OSHA program, covering both private-sector and state and local government employees. Two additional States administer job safety and health programs for state and local government employees only; private sector employment remains under federal jurisdiction in those two States. Fifteen of the twenty-one States that administer a full OSHA program have elected to accept authority for Superfund sites; many of them have already adopted procedures similar to those established in OSHA's Field Directive. In addition, the resources of the Health Response Team and specially trained OSHA regional staff are available to the States upon request. In the six state-plan States and one jurisdiction which have chosen not to accept responsibility for Superfund sites, Federal OSHA retains jurisdiction.

OSHA'S ONSITE ACTIVITIES AT SUPERFUND SITES

The Directive has been in effect for about a year and a half, and OSHA's compliance officers have been receiving training at EPA's Edison, New Jersey training facility for somewhat longer, since August 1983. In that time more than one hundred federal and State compliance officers have been trained to respond to hazardous waste emergencies. EPA reimburses OSHA for the costs of training programs for federal compliance officers and also for the cost of equipment used for onsite activities. This equipment includes such items as full-body encapsulating protective clothing and oxygen-supplied helmets ("moon suits") for the Agency's federal compliance officers. OSHA has also purchased a supply of photoionization detectors for determining the class of organic substances found at sites where the hazards are unknown. For Fiscal Year 1986, EPA has earmarked $222,400 for OSHA's Superfund-related expenses.

Since October 1, 1983, Federal and State OSHA compliance officers have conducted inspections at fifty-nine hazardous waste sites, seventeen of which were Superfund sites. It is important to note that only experienced compliance officers with special technical training are sent to Superfund sites. In the course of an inspection they review contractors' safety and health plans and provision of monitoring equipment, and they evaluate the use of personal protective equipment.

OSHA's Health Response Team, based at its Salt Lake City Laboratory, is available for on-site or off-site technical assistance and consultation, as are specially

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trained Regional staff. A site evaluation report prepared by the technical assistance team is provided to the contractor and to EPA's or the Coast Guard's "On-Scene Coordinator."

A technical assistance visit by members of OSHA's Health Response Team to a Superfund site in Hyde Park, New York, illustrates the services the Agency can provide. In this instance, which began in 1983, Team members were able to offer constructive advice on core-drilling operations and to contribute to EPA's recommendations for modifications in the site's general safety and health plan and its air-monitoring and off-site contingency plans. EPA has indicated to OSHA that additional requests for assistance of this type can be expected as more and more Superfund sites become the subject of negotiations between EPA and the parties responsible for cleaning up hazardous waste sites.

Since the Agency's statutory authority permits a response only to situations where employees are involved, it needs to be pointed out that in the last fiscal year there were only about 300 Superfund sites where actual cleanup work occurred. These estimates are based on EPA budget figures which indicate that during FY 1984 there were 204 "removal actions" (short-term, emergency responses) and 116 "remedial actions" (long-range cleanup) at Superfund sites. Since some removal actions take place at the same sites where remedial activity is also taking place, we can assume that the number of Superfund sites where work was actually going on in FY 1984 were fewer than 300. For FY 1985 EPA projects more than 200 remedial actions and 190 removal actions, or, allowing for some overlap in the two activities, no more than 350 sites where actual work is taking place. In FY 1986 the projections are for about 100 additional remedial actions, for a possible total of 450 Superfund sites at which employees may be exposed.

FUTURE DIRECTION OF OSHA ACTIVITIES AT HAZARDOUS WASTE SITES

OSHA is reviewing its present enforcement policies to ensure their effectiveness in controlling potential hazards at waste sites. With this in mind, the issue of hazardous waste was made a major topic at the recent OSHA Managers' Planning Conference. A number of recommendations concerning the Agency's policies for Superfund and other hazardous waste sites were developed by members of a special Workshop conducted at the conference. Members of the Workshop included, in addition to myself, the Director of Technical Support, three Regional Administrators and a number of other OSHA career managers.

One of the issues addressed by Workshop members was the possible need to promulgate safety and health standards specifically for hazardous waste sites. The Workshop came to the conclusion that the immediate need for such a standard or standards had not been established. Workshop participants considered the applicability of existing construction and general industry standards to hazardous waste sites and concluded that they could provide an adequate basis for OSHA's efforts to protect employees at these sites. The group recommended that enforcement procedures for OSHA's standards for respirators be modified to facilitate enforcement of the provisions of this standard in an outdoor environment.

Based on the recommendations of the Workshop as well as on OSHA's general Field experience at hazardous waste sites, advice received from the Agency's Health Response Team, and information in NIOSH evaluations of safety and health conditions at active Superfund sites, OSHA will be reviewing its existing enforcement policies in this area. The Agency is considering possible modification of its 1983 Field Directive to address any unique safety and health problems that may exist at Superfund and other hazardous waste sites. The goal of these revisions would be to improve the safety and health protection afforded to employees at these operations. Current OSHA procedures require that exposure levels above OSHA's permissible exposure limit for a toxic substance must be documented before a violation of the standard requiring personal protective equipment may be cited by OSHA. Since potentially toxic substances are not always present in levels exceeding OSHA's limits in the outdoor environment of waste sites, OSHA, under present compliance instructions, may be unable to cite for possible violations of its standards for personal protective equipment. Under the change being considered, OSHA would be able to enforce these standards at waste sites even in the absence of documented employee overexposure, thereby giving OSHA a method for dealing with the unknown.

Another significant policy matter taken up by participants at the OSHA Managers' conference was whether the Agency's inspection-targeting system should be altered to provide for routine scheduling of inspections at hazardous waste sites and the proper level of resources to devote to this sector. OSHA now schedules its targeted safety inspections in the construction industry and in industries in the manu-

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facturing sector with lost workday injury rates higher than the national average. The Agency targets industries for scheduled health inspections based on their inspection history. Some hazardous waste sites which are classified in the chemical manufacturing industry may be included in OSHA's targeting lists for safety inspections; such sites are also likely to be included in the Agency's targeting lists for health inspections. OSHA maintains a high presence in the chemical manufacturing industry, inspecting one in every five establishments in that industry each year.

Many hazardous waste sites, on the other hand, are not located in the manufacturing sector, and OSHA's present safety targeting system does not provide a means for scheduling inspections at these sites. Similarly, the Agency's current health targeting system is not applicable to these sites.

Because the current targeting system thus does not give priority to most hazardous waste sites and because the Agency wanted to determine the seriousness of the problem at these sites, OSHA welcomed a proposal from its Region X office for a local emphasis program targeting hazardous waste sites in the state of Idaho. The program was approved by OSHA's National Office in September 1984.

In considering the question of inspection targeting at hazardous waste sites, the Planning Conference Workshop recommended that an internal task force review the targeting issue. The workshop participants proposed that the results of the Idaho program, which are expected by October 1, 1985, should be used to determine resource needs. The Workshop also recommended that the Agency consider contracting with the States to conduct inspections at these sites as is now done for inspections of migrant farm labor camps.

OSHA will also be working closely with EPA to refine current procedures for interagency referral of information to OSHA about employee hazards found at Superfund sites. Such referrals invariably trigger onsite visits.

Within the next few months, OSHA will develop and implement a computerized database for hazardous waste activities to be used by all Regional and National office staff. The database will include information on training received by OSHA personnel, cost of equipment purchased and information on all inspections and technical visits conducted at hazardous waste sites, including a description of problems and recommended solutions. In addition, the database will contain information on the applicable policies and procedures for making inspections and technical visits.

OSHA also intends to increase significantly the level of support it offers to the interagency National Response Team. Of particular importance to OSHA are the Team's current plans to expand its activities to prevent and prepare for accidental releases of hazardous substances from chemical plants. It is OSHA's belief that the prevention and preparedness work envisioned for the Team can be an effective tool in mitigating chemical accidents. An example of a recent effort of the Team to reduce the possibility of accidental releases is the action by the Philadelphia Region's Response Team (one of ten regional offshoots of the National Response Team) to improve coordination of the contingency planning activities of government and private-sector entities in the Kanawah Valley of West Virginia. OSHA participated in that valuable exercise, and we envision similar activities in other parts of the country.

OSHA's policy in the area of Superfund and other hazardous waste sites is evolving. The Agency is looking to see what works best and adapting and modifying existing programs to address the problems of workplace dangers at these sites. We are willing to listen to anyone with ideas and information to make the Agency's efforts more effective in this area.

Mr. GAYDOS. Do you think OSHA is moving fast enough in this area?

Mr. MILES. I think we have a schedule we are working on, and I think, as I mentioned, that a lot of the Superfund sites don't have employees there. I think our penetration rate right now has been about equivalent to what it is in other areas like manufacturing.

Mr. GAYDOS. All those sites that are identified as such, some 400-odd sites?

Mr. MILES. That was the initial number of Superfund sites, about 400, yes, sir.

Mr. GAYDOS. Did OSHA at one time or another take a look at all of them, or don't they go until they have some employees on there or are about to do something to them?

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Mr. MILES. Our directive says that, one, we would inspect if EPA refers it to us. Anytime they find egregious safety and health violations there, they would refer it to us, and we would go out there and make an inspection.

Referrals from any other agencies that might be onsite, employee complaints, or an accident would cause us to go out there. That is the policy we have been working under. We have not been to all 418 sites.

Mr. GAYDOS. Wouldn't it seem strange to you as an outsider if you were given the set of facts that you just gave to me, and that is, I think I quote you accurately that you say, talking about the hazardous policy, stepping up the inspections, not waiting until someone calls you on, and there should be a set number of inspections.

These 400-and-some-odd sites are inherently dangerous, that has to be admitted. And second, you talk about a hazardous policy as such. Why has it taken so long? You are talking about guidelines and we are doing this, and we are meeting.

You know, we have had these dumps around for a good 3 or 4 or 5 years now, they have been identified, Love Canal and everything like that, and OSHA just seems to be perpetually behind schedule.

Now, I don't know if it is attributable to lack of funds or the lack of will, or is it a changing of the Director too often? But it just seems a pattern, it is so obvious, you are always talking about, in highfalutin terms, like we are going to cooperate, we are going to do this, and we are going to do that, and technical advice, and all of that is a bunch of hooey as far as I am concerned, because you have got to get down to rug-cutting time.

It seems to me that it would be very simplified if you have a hazardous area, inherently hazardous, number one; second, it doesn't take that much of an effort, based upon all the other information that has been available, and particularly from EPA, to set up a standard, or to do something on a regular basis, but you are always in motion, you are going to do it, you are going to do it.

Doesn't that bother you?

Mr. MILES. Well, I don't agree we——

Mr. GAYDOS. I know you wouldn't agree.

Mr. MILES. We are doing something. We did inspect 59 sites in the last year and a half, and that is a high penetration rate.

The majority of those sites don't have employees on them. On many of the 418, there isn't anybody working there. What we would look for is where there are employees, so we can protect employees on those sites. And we have.

We are evaluating our Idaho project, where we are inspecting all the sites in Idaho, to see what there is. As it turns out, in over half of those sites, there weren't employees involved, or, where there were, they were adequately protecting them. We found no violations at the site.

Mr. GAYDOS. I would feel embarassed, if not chagrined, believe me, if I were an agency with 15 years' history, and here you have EPA coming along and they are so far ahead of you in such a short period of time. Don't you feel a little bit awkward?

I know that your jurisdiction is much larger, and they are concentrated, but here is an area that, say, it has been exposed for 5

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years, you have been in business all these years, and now, after the exposure has been with us at least 5—I am probably off, probably the Superfund has been around, I mean the concept, 10 years—but with all that experience you had, EPA comes into existence, does all these things in a limited period of time, makes a fantastic presentation of affirmative evidence of what they are doing, and even their greatest antagonist, the unions, come in here and say they are doing a pretty good job.

And here is OSHA, you know, again dragging its feet, and being subjective without any adequate defense, you know, to these accusations of not putting a standard in, you know, and monkeying around again with guidelines.

You know, I am going to get Rowland back again. If he doesn't want to come, I am going to subpoena him. I am serious. And I am going to gather a list of things. I don't know how long he is going to be there, and I don't particularly care, I like him as an individual, but he hasn't shown me a darned thing.

And of any committee on the Hill, I would have to say, and this is a self-serving declaration on my part, we have been the most patient. We have brought men in here, and have given them delays, brought them in and assured them they would not be harassed in any way, and he hasn't shown me a darned thing.

He has had no communication with our committee at all, he has made no overt action, and nothing is different, in fact, it is worse, than it was before. And I can put together some very, very far-reaching and trying interrogatories, you know, and questions.

I would think the time has come to, even with the limited or frozen assets, somebody has to start taking a look at some of these things. This is a responsible agency. I would be embarrassed, and I don't want to preach, I am going to stop in 1 minute.

I would be embarrassed, decidedly so, if some agency came along and did so much in such a limited time, in such an area. I really would. I don't expect you to——

Mr. MILES. I would just say, I think we feel that our standards are adequate. And we have issued——

Mr. GAYDOS. You don't have any standards. How can you say your standards are adequate?

Mr. MILES. Yes, sir, we do, we have issued——

Mr. GAYDOS. A couple. Huh?

Mr. MILES. We have issued citations for 109 violations——

Mr. GAYDOS. I am talking about——

Mr. MILES [continuing]. On those worksites, and they are for respirators and I think, as Mr. Turner mentioned, we needed some site training. We have cited that standard five times on hazardous waste sites. We have only issued three citations for general duty clause violations. Normally, we see a lot of those when we need standards. So I think we believe we have adequate standards.

Now, I think the question is about our enforcement posture and the penetration rate. We are going into that; we are looking at that. I hate to answer we are looking at that, but we are considering that, and I think the interest is such that we need to consider it.

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Mr. GAYDOS. I am quoting from your prepared testimony—we have standards or don't we, you say we do, and would you name them, and put them on the record.

Mr. MILES. We have our general industry standards, our construction standards, and 5(a)(1). We issued 109 violations in these 59 sites.

Mr. GAYDOS. You think those are accurate—adequate?

Mr. MILES. I think those are adequate, and one area we mentioned in which we would look for a change is where we would be able to say that they should wear respirators on the sites when we cannot find overexposure to a chemical. This is the main thing that we think that we need to change.

Mr. GAYDOS. Is this an accurate statement: "The workshop"—do you know which one we are referring to?

Mr. MILES. Yes.

Mr. GAYDOS [reading]:

> The workshop came to the conclusion that the immediate need for such a standard or standards had not been established.
>
> Workshop participants considered the applicability of the existing construction and general industry standards, the hazardous waste sites, and concluded that they could provide an adequate basis for OSHA's efforts to protect employees at these sites.

If you have the information, could you describe or identify the equipment that your personnel have when they go out to these sites?

Mr. MILES. Yes; we have the moonsuit-type operation when we go on these sites. We have the personal protective equipment that EPA requires on those sites—the moonsuits and self-contained breathing apparatus.

Mr. GAYDOS. You have duplicated or mimicked EPA's requirements when you go on-site. Have you taken all of their regulations, or just the equipment aspect part of it?

Mr. MILES. No; we review what EPA requires on-site, and if the contractors had not been following those requirements, we could issue a 5(a)(1) citation for their procedures.

Mr. GAYDOS. You would?

Mr. MILES. Yes.

Mr. GAYDOS. You would probably lose your fine, because you know, if you had those standards—is that considered then a standard or guideline, what is it?

Mr. MILES. 5(a)(1) is the general duty clause.

Mr. GAYDOS. General duty clause. We haven't had a general duty clause fine stand up as long as I can remember. They are so reduced, and they are so ineffective and nobody enforces them and everybody laughs at them. I keep reading the publication, and every one has to do with a general duty clause, we lose it all the time. You might as well not even have it, if you are going to go through a charade.

Mr. MILES. I am not. OSHA has won the majority of general duty clause cases in the last couple of years. We didn't in the past, around 1980, because we issued considerably more. We have issued guidelines that say what we have to meet as the requirements of 5(a)(1), and we have won these cases.

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And I tell you, we have issued three of these general duty clause citations on the inspections we have conducted on hazardous waste sites.

Mr. GAYDOS. Well, all right. I have got your statement, it is a comprehensive statement, and I am going to do something unorthodox. I am going to let counsel over here try to rehabilitate you.

Mr. MORGRET. Thank you, Mr. Chairman.

Mr. GAYDOS. Let me put on record the reason why counsel is asking questions for the minority member, and it is only fair that he get some questions and answers on the record, and clear some things up. He has not been able to appear because of prior commitments, and this will at least be a substitute for the member being here.

Mr. MORGRET. I know Mr. Chandler appreciates that. Thank you. And I do as well.

Mr. Miles, has OSHA had a lot of complaints from workers engaged in cleaning up toxic and hazardous wastes? Are there actual numbers as compared to other industries?

Mr. MILES. Of the 59 inspections we made, 17 were complaints.

Mr. MORGRET. Is that a high number compared to, say, high hazard industries that are listed by OSHA?

Mr. MILES. No; I would say that is probably in line or even lower than our other regular complaints.

Mr. MORGRET. Lower than——

Mr. MILES. Somewhere in there. It would be hard to measure, but it is—yes, I would say this is not a large-scale number of complaints.

Mr. MORGRET. Any theory on why there would be fewer complaints in this area than in some other industries?

Mr. MILES. No, I would not know except that it seems to be, like I say, that on the Superfund sites, those employees are protected. They have personal protective clothing and equipment, and they probably do not have complaints.

I think some of these complaints are about the heat stress they experience when they wear these spacesuits. If you are in the southern part of the United States when you wear one of those, it is very uncomfortable.

Mr. MORGRET. I can imagine.

One of our witnesses today was a representative for the firefighters, and I know that is tough work. A lot of our firefighters, I believe, are public employees at the local level. Does OSHA have jurisdiction over local employees under the act?

Mr. MILES. Not in States where we have Federal enforcement. In States where State plans have their enforcement, they do cover public employees and would cover the fire departments.

Mr. MORGRET. And that is specified by the Congress in the act?

Mr. MILES. Yes, it is in the act itself. We do not cover public employees in Federal-States.

Mr. MORGRET. That would be true for small employers with 10 or fewer employees as well, who are engaged in cleaning up these sites, wouldn't it?

Mr. MILES. According to language in the appropriations act, if they were in a low-hazard area, we would not cover them, yes, sir.

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Mr. MORGRET. Do you have any idea of exactly how many workers we are talking about nationwide, actively engaged in toxic waste cleanup?

Mr. MILES. I don't know the number. I don't think it is a large number. On the 59 sites we inspected, there were only 287 employees total.

Mr. MORGRET. Would that figure into how you prioritize whether you would put OSHA enforcement or even standard-setting personnel to dealing with this, versus your choosing what other areas of employment that you would enforce job safety?

Mr. MILES. Well, in the enforcement area, we would look at the number of employees, because we would try to get the largest coverage we could, but that doesn't say that if it is a hazardous site, we wouldn't go there.

In the standards area, they do some prioritization on the number of employees exposed to the hazard and how many people are at risk.

Mr. MORGRET. So that would figure into whether you decided that this was something that you would—I mean you have to choose, you can't do everything. We know that there are 5 million work sites in the country, so the number of employees engaged in this kind of work, as well as the dangers, would be things that would figure into how you would prioritize whether you would deal with that or, say, construction?

Mr. MILES. That is right. We have to weigh where we put our resources into what work places, what work sites. It is a balancing act, and that is what we do. If there are fewer employees exposed, we may not have that rate, although we, in some areas, for example, in oil and gas drilling, we do put some emphasis on that.

Mr. MORGRET. Well, thank you very much.

Thank you very much, Mr. Chairman. I appreciate it.

Mr. GAYDOS. Let me ask a couple of questions.

Granted, you have limited funds. But I don't see the Secretary of Labor in the past, nor the Assistant Secretary of OSHA, whoever he may have been in the past, I don't see them kicking and screaming and asking for more funds down there at the Office of Management and Budget.

They just keep coming before the committee and justifying that they have enough funds, because I have asked all of them, on many specific occasions, do you need more money? And they said no, we could always use more money, but it is sufficient, we are doing a sufficient job.

So I would think that, going back and saying that, well, we have limited resources, and therefore we can't address ourselves to this problem adequately, is a poor justification, I don't see anybody—again, I want to emphasize—from the administration that makes a point out of an inadequate budget. They seem to go along and submit the budget as such.

Now, a reason for it, an oblique reason for it, might be that the administration appointed them, I don't know, but they do seem to follow that tendency.

Let me ask you something: Isn't 20 percent, which 17 out of 59 is, roughly, isn't that a large number of requests, compared to the requests you get throughout the whole country and other industries?

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Twenty percent is a pretty high percentage, and I am going back to my experience with the Mine Safety Act, on the number of mines we have, and how many requests we have there. That is a pretty high request, I think, isn't it?

Mr. MILES. That is higher than our national average for complaints, which is about 11 percent of all inspections including general schedule inspections. But we don't do general schedule inspections at these hazardous waste sites—so it is a little misleading figure, and that is why I couldn't come up with exactly—say, they are higher or lower. I think 17 seems a little low.

[Information inserted for the record follows:]

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As the table below shows, from October 1983 to date, complaint inspections accounted for approximately 11 percent of all Federal OSHA inspections -- programmed and unprogrammed -- and for 48 percent of Federal OSHA unprogrammed inspections. (Programmed inspections are those scheduled by OSHA on the basis of available data that indicate the industries and activities in which hazards are most likely to exist. Unprogrammed inspections are those conducted by OSHA in response to fatalities or catastrophes, reports of imminent danger, reports by employees or employee representatives of alleged hazards, and referrals by other agencies.) It should be noted that for the period in question, 77 percent of all Federal OSHA inspections were programmed inspections and 33 percent were unprogrammed.

Over this same period a much lower percentage of all inspections at hazardous waste sites were programmed inspections, and so a comparison of percentages of complaint inspections at hazardous waste sites with complaint inspections at all sites is misleading. Only 24 percent of all inspections at hazardous waste sites were programmed, while 76 percent were unprogrammed. Complaint inspections accounted for 29 percent of all Federal and State OSHA inspections at hazardous waste sites and for 38 percent of unprogrammed Federal and State inspections at these sites.

The small number of complaints received from employees at hazardous waste sites -- 17 since October 1983 -- would seem to indicate that: (1) there was not a need to conduct more programmed inspections and (2) there were few serious problems which were not being adequately addressed.

Table

OSHA Complaint Inspections at Hazardous Waste Sites: 9/83 -5/85
Compared with All OSHA Complaint Inspections

	All Federal OSHA Inspections		Federal/State OSHA Inspections at Hazardous Waste Sites	
	#	% of All Inspections	#	% of All Inspections
Total	106,707	100%	59	100%
Programmed	82,410	77%	14	24%
Unprogrammed	24,297	33%	45	76%
Complaint	11,700	11%	17	29%

	All Federal OSHA Inspections		Federal/State OSHA Inspections at Hazardous Waste Sites	
	#	% of Unprogrammed Inspections		% of Unprogrammed Inspections
Complaint	11,700	48%	17	38%

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Mr. GAYDOS. Well, 8 percent generally pertains to other areas. Twenty percent is a little high, wouldn't that justify just a little special attention at this time, an early time, at a right time, a timely time to do these things rather than wait until we have a catastrophe?

Remember, we are only scratching the surface on these things. So you might be plagued next year with it, and be inundated with the amount you are going to have. In fact, I think you are going to be.

And, again, my whole sneaking suspicions about these little danger areas, you know, these little time bombs sitting throughout the whole country on a fantastically high scale, they are not just the big ones that we know of, the drums are sitting there and kids are playing in it, and they are starting to leak and getting into the water supply and stuff like that.

And industry, I love industry, they made this country a great, great country, but industry being what industry is, you know, they couldn't dispose of the stuff, so they just kept secretly dumping it and dumping it and I think our small mechanic, even a small sole proprietor is doing the same thing in his way, in garages hidden in every residential area in this place, and in hidden dumps and things like that.

I think that has occurred.

Mr. MILES. In response to that, I say we are looking at the whole thing, and I think we have to consider——

Mr. GAYDOS. The standard. What is the matter with the standard, is that a taboo or something?

Mr. MILES. No. I think——

Mr. GAYDOS. Will you lose your fingers or what?

Mr. MILES. I am not sure a standard would help us that much. You know, we can increase our emphasis in the number of inspections we make, and I am not sure we would need a standard to do that. I think we have—I am serious when I say we have adequate standards.

I think we could increase our emphasis, and that is what we recommend looking at, based on our Idaho project, and I think we can do more inspections in that area.

Mr. GAYDOS. Let me ask you one simple question.

Do we have a standard for PCB? I am pretty sure we don't. I might be wrong.

Mr. MILES. I don't think it is in our—I would have to supply that for the record, I am not sure on the PCB. We have obviously cited, in the past, for PCB.

[The information follows:]

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Violations for overexposure to polychlorinated biphenyls or chlorodiphenyls (PCB's) can be cited under 29 CFR 1910.1000, Table Z-1. There are two separate OSHA standards for PCB's, depending on the percentage of chlorine content. Both standards have a skin designation which indicates the substance is a skin irritant or can be absorbed through the skin. The two standards are:

Substance	Permissible Exposure Limit (as an 8-hour time-weighted average)
Chlorodiphenyl (42 % chlorine)	1 mg/m^3 (1 milligram per cubic meter air)
Chlorodiphenyl (54 percent chlorine)	0.5 mg/m^3

No citations have been issued for PCB's at hazardous waste sites.

In the event that the chlorine content varies from either of the two amounts above, (54% and 42%), a 5(a)(1) citation may be issued.

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Mr. GAYDOS. One little stinking chemical of all the thousands that we have. I am telling you, some day, this is my observation, I say it with all due respect to your administration, and you have a lot of good points involved, but some day, some people in responsible positions are going to get hauled in and there are going to be, could very well be—it is not my threat—could very well be some dire consequences, because they are going to be held—they just haven't responded, and we have had some examples, illustrations in the past.

A public official has a certain responsibility, and dragging feet can be justified only so long, and that agency head, whoever he may be, some day is going to find himself in hot water, because these people are suffering permanent and irreparable harm, and they are going to be suing, and deaths are going to result, and we do have a criminal aspect in OSHA, if I remember correctly we passed it, in fact, the first criminal suit in OSHA's history was right up in my district up there.

There was a mine foreman, if I remember it, one of the mines up around the Pittsburgh area, and through his actions as a foreman, they were doing mining in this particular section, and the river broke through, and it washed out the complete workings of the mine. There were several miners drowned, I think seven or eight.

And he was indicted. You know, they had a criminal charge brought. And he was the foreman. The foreman of the shift was indicted. So I am just suggesting that some of these things have some dire consequences. We can't be waiting for standards while all of these happenings occur.

Mr. MILES. On PCB's, I know we have issued citations in the past, probably used 5(a)(1). I am just not familiar as to whether we have the standard or not on that, but I can supply that. But I know we have issued citations for people handling PCB's.

I will not disagree with you. PCB is one of the major hazards you find at these hazardous waste sites.

Mr. GAYDOS. It is unfortunate, we have new fellows coming in, new Secretaries, and one resigns, another one comes in, and then the chain gets broken, and we have a standard about ready to be adopted, and then it is put on the back burner again. We have had this happen time and time again.

And I don't know how we are going to combat it, but I think the public should know, and the record should show that somewhere along the line, we have got to start doing something about the adequacy and the timeliness of standards, because everybody is dragging their feet, it seems. Our record is not the best.

I do want to commend your agency, though. In some areas they are very sensitive, and have shown a tendency to be on top of things, but in some other areas, I think they are wholly inadequate. That is my personal feeling.

I want to thank you again for coming. Counsel, any more questions?

Mr. MORGRET. No.

Mr. GAYDOS. I want to thank you for coming, I mean that sincerely. I think the record should also show that the Agency has been most responsive when we have asked, they have come, they have been well-prepared. They are pretty adamant on their posi-

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tions, but they have been responsive and sensitive to the committee's needs.

So, we wish to commend you on that. Thank you very much for your appearance.

Mr. MILES. Thank you, Mr. Chairman.

Mr. GAYDOS. The committee will stand adjourned until the call of the Chair.

[Whereupon, at 12:15 p.m., the subcommittee adjourned subject to the call of the Chair.]

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Memorandum of Understanding

Among

the National Institute for Occupational Safety and Health,

the Occupational Safety and Health Administration,

the United States Coast Guard

and the United States Environmental Protection Agency

* * *

Guidance for Worker Protection During

Hazardous Waste Site Investigations and Clean up

and

Hazardous Subetance Emergencies

1. **Purpose:**

The purpose of this Memorandum of Understanding (MOU), is to provide guidance for the protection of workers who investigate and clean up hazardous waste sites and respond to hazardous substance emergencies.

2. **Authority:**

The National Institute for Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA) are entering into this understanding pursuant to the Occupational Safety and Health Act of 1970, sections 20 (a) and 7 (c) (1) (29 USC 651, et. seq.) respectively, including Executive Order #12196; the United States Coast Guard (USCG) is entering into this understanding pursuant to the authority of the Clean Water Act (33 USC 1251 et. seq.) the United States Environmental Protection Agency (USEPA) is entering into this understanding pursuant to the authority of the Clean Water Act (33 USC 1251 et. seq.) and the Resource Conservation and Recovery Act Amendments of 1980 (42 USC 7001). In addition, NIOSH, OSHA, USCG, and the USEPA are entering into this understanding in order to carry out their joint responsibilities under the "Comprehensive Environmental Response, Compensation, and liability Act of 1980" (P.L. 96-510).

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3. Interagency Coordination:

The following representatives will be responsible for the coordination and implementation of activities for their respective agencies:

- o the Director of the Division of Criteria Documentation and Standards Development (NIOSH);
- o the Director of the Directorate of Technical Support (OSHA);
- o the Chief, Environmental Response Division (USCG Headquarters);
- o the Director of the Office of Occupational Health and Safety (USEPA).

NIOSH is assigned the lead agency role.

4. Objectives:

The interagency objectives are: a) to develop and write a comprehensive guidance manual that will establish procedures to protect workers involved in hazardous waste site investigations and clean up and during response to emergencies involving hazardous substances; b) to identify and establish mechanisms for transmitting occupational health and safety information to workers and those responsible for their protection; c) to identify and establish mechanisms for transmitting relevant field experience concerning occupational health and safety practices to Federal agencies.

NIOSH will accomplish the objectives of this effort with the support, cooperation, and assistance of OSHA, USCG and USEPA under a procedure to be incorporated in the work plan.

5. Implementation:

This understanding establishes an Interagency Work Group consisting of at least one representative from each office identified in section 3. The Work Group will develop a work plan to implement the objectives listed above; individual tasks and any necessary resource requirements will be described in subagreements under this MOU. The final product(s) of designated tasks will be subject to the review of NIOSH, OSHA, USCG, and USEPA.

6. Period of Agreement:

This Memorandum shall continue in effect until the completion of the stated objectives, unless modified or amended by the assent of all parties or terminated by any party upon a 30-day advance written notice to the other parties.

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Nothing in this agreement is intended to diminish or otherwise affect the statutory authority of the agencies involved.

This Memorandum will become effective on the date of the last signature below.

Anthony Robbins, M.D.
Director
National Institute for Occupational Safety and Health

DEC 18 1980
Date

Eula Bingham
Assistant Secretary of Labor
Occupational Safety and Health Administration

DEC 18 1980
Date

W.E. Caldwell
Rear Admiral, U.S. Coast Guard
Chief, Office of Marine Environment and Systems

DEC 18
Date

Douglas M. Costle
Administrator
United States Environmental Protection Agency

DEC 18 1980
Date

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EVALUATION OF OCCUPATIONAL HEALTH AND SAFETY PROGRAMS
FOR EPA EMPLOYEES AT SUPERFUND SITES

The Environmental Protection Agency (EPA) has established occupational health and safety (OHS) programs for EPA employees engaged in Superfund activities.(1) The EPA's Occupational Health and Safety Staff (OHSS) is currently measuring how well these programs are being implemented in the field.

BACKGROUND

The EPA estimates that in 1980 over 57 million metric tons of the nation's annual total wasteload could be classified as hazardous and every year the amount of hazardous wastes increases.(2) Congress passed the Resource Conservation and Recovery Act (RCRA) in 1976 to deal with these newly generated waste and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in 1980 to deal with the improperly disposed of wastes generated in the past. EPA was charged with the primary responsibility of carrying out these mandates.

CERCLA, commonly known as "Superfund" because this legislation created a "super" fund of money by taxing the oil and chemical industries, permits Federal and State governments to move quickly to deal with hazardous substances releases from both uncontrolled waste disposal sites and hazardous substances spills. EPA employees are among the Federal employees who respond to hazardous substances responses.

OHSS is responsible for assuring that the EPA provides its employees with safe and healthful working conditions wherever they work. OHSS has developed specific programs to protect EPA employees at Superfund sites.(3)

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OHSS recognized the need to evaluate OHS at Superfund sites to determine whether EPA officials and employees are complying with the Superfund OHS programs. OHSS entered into an Interagency Agreement with the National Institute of Safety and Health (NIOSH) to have NIOSH Regional Industrial Hygienists evaluate the OHS program for EPA employees at selected Superfund sites. This paper describes the evaluation program and provides the results of the fifteen sites evaluated to date.

PROCEDURES

Interagency Agreement Requirements

The Interagency Agreement has three components. NIOSH will:

1. Perform approximately 45 evaluations of OHS programs at Superfund sites. OHSS will designate the sites.
2. Conduct comprehensive air monitoring at five of the sites;
3. Provide (OHS) consultation upon request while on site.

Program Evaluation

NIOSH is evaluating the EPA's OHS programs at sites and reporting the results using two complimentary approaches: numerical ratings and narrative ratings.

OHSS identified the program elements which comprise the Superfund OHS programs and assigned total scores to each. The sum of the scores for the program elements equals 100 points. OHSS judged the importance of each element in reducing illness and injury and weighted the scores appropriately. For example, OHSS assigned 20 points to the program element Policy and Responsibility and assigned 30 points to the program

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element Operational Practices. The scores for each of the program elements can be found in Table 1. OHSS selected the program elements from: 1) EPA internal safety directives and guidelines;[3-5] 2) Presidential Executive Orders and Occupational Safety and Health Administration requirements for Federal agency occupational health and safety programs;[6-7] 3) the open literature, and 4) OHSS professional judgement.

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Program Element	Total Possible Score
1. Policy and Responsibility	20
2. Health and Safety Program Requirements	30
3. Work Practices	20
4. Operational Practices	30
Total	100

Table 1. Program Elements Selected For Evaluation of OHS at Superfund Sites

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OHSS then divided each program element into criteria which NIOSH used to evaluate the OHS programs at each site. Determining appropriate criteria is the most challenging part of an evaluation. According to a NIOSH publication,[8] "results are the most desirable indicator of program performance" and the measures used for evaluating program performance should fulfill three requirements: 1) the measures should be quantifiable; 2) the measures should be directly related to the program; and 3) the measures should not be influenced by other contributing factors. "Measure" as used in the NIOSH publication is the same as "criteria" as used in this paper. OHSS imposed an additional requirement: 4) the measures can be made using a modest amount of resources.

NIOSH recognized the difficulty of measuring results and recommended developing "proxy measures" to enhance the evaluation of OHS program performance. NIOSH describes proxy measures as "factors which are not results themselves, but can be considered indicators of results." OHSS used proxy criteria to evaluate OHS program performance at Superfund sites.

In selecting these proxy criteria, OHSS assumed that the criteria actually measure conditions which affect injury and illness. A simple example is the assumption that establishing and enforcing a policy that eye protection must be provided and worn reduces eye injury. OHSS assumes that eye injuries are reduced by these actions without sufficient experience with EPA employees to prove it. OHSS used similar assumptions to select criteria covering more complex OHS issues and selected 30 criteria in all. A sample of the criteria selected for a Program Element is presented in

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Figure 1.

OHSS developed a rating system using numerical scores in order to present the results of the site evaluations in a convenient form. OHSS required a numerical rating system that is simple, uses weighting factors that properly reflect the importance of each Program Element, and effectively discriminates the OHE program performance at different sites. OHSS relied on its professional judgement to develop a rating system meeting these requirements.

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Date of Evaluation xx-xx-xxxx
Evaluator xxx xxxxxx

SUPERFUND SITE OCCUPATIONAL HEALTH AND SAFETY PROGRAM EVALUATION

Program Element		% Score
3.	WORK PRACTICES	
(a)	Adequate protective clothing is worn by all personnel.	_____
(b)	Appropriate work-rest regimen and replacement of fluids to deal with heat stress.	_____
(c)	Eye protection is worn on-site and meets ANSI Z87.1	_____
(d)	No eating, drinking, etc., on-site.	_____
(e)	Hazardous substances are immediately washed off contaminated personnel.	_____
	TOTAL	_____

WEIGHTED SCORE (20 Points max) x (avg. %)=

Figure 1. Example of a Program Element and Criteria

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Each criteria gets an equal portion of the score assigned to the Program Element it falls within. In addition, each criteria is rated by the evaluator at one of five possible percentages. The percentage scoring system for the criteria is presented in Table 2. The percentages for all the criteria within a Program Element are summed and divided by the number of criteria in the Program Element to yield the average percentage. This number is multiplied by the total available points for the Program Element to determine the score for that Program Element.

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Percentage Points	Adjectival Equivalent
100	Excellent
75	Minor Deficiencies
50	Fair
25	Major Deficiencies
0	Nonexistent

Table 2. Percentage Scoring System for Evaluation Criteria

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NIOSH conducted the evaluations at fifteen sites to date. The evaluators collected information from a variety of sources. They conducted interviews with On-Scene Coordinators, supervisors, safety committee representatives, and employees. In addition, the evaluators examined safety plans and records of: past inspections, training experiences, medical examinations, chemical inventories, accidents, and other relevant activities to determine the level of compliance with the criteria. They conducted walk-through spot checks to corroborate the information obtained by interviews and examining records. EPA's Regional OHS Designees provided information on the Regional OHS programs.

NIOSH prepared a draft evaluation report, in the format specified by OHSS. A sample completed portion of the scoresheet for the evaluation report is presented in Figure 2. Regional OHS Designees and EPA Superfund personnel reviewed and commented on the draft report. OHSS forwarded a revised final report to the responsible Regional Superfund official.

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Date of Evaluation xx-xx-xxxx
Evaluator xxx xxxxxx

SUPERFUND SITE OCCUPATIONAL HEALTH AND SAFETY PROGRAM EVALUATION

Program Element		% Score
3.	WORK PRACTICES	
(a)	Adequate protective clothing is worn by all personnel.	100
(b)	Appropriate work-rest regimen and replacement of fluids salt deal with heat stress. (cool weather not evaluates)	N/A
(c)	Eye protection is worn on-site and meets ANSI 287.1	100
(d)	No eating, drinking, etc., on-site. (lacked have washing facilities)	50
(e)	Hazardous substances are immediately washed off contaminated personnel. (Questionable decon solution)	50

300 ÷ 4 = 75 Average

WEIGHTED SCORE (20 Points max) x (75 avg. %)= 15 points

Figure 2. Sample Completed Portion of the Scoresheet for the Site Evaluate Report

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Narrative Rating

NIOSH identified the major OHS program areas in two broad categories to evaluate and provide a narrative rating for: I. EPA Regional Office Responsibilities and II. Safety and Health Program Requirements. Category II includes the sub-areas Site Safety Plan and On-Site Operations. A sample of a page from NIOSH's narrative evaluation criteria is presented in Figure 3.

Personnel Monitoring

NIOSH has conducted comprehensive personnel monitoring at one Superfund site to date under this Interagency Agreement and has published the results.[11]

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E. Provide semi-annual review, including

1. On-site inspection

2. Documentation of review and abatement actions, if any, recommended and implemented

II. Safety and Health Program Requirements

A. Site safety plan

1. Copy approved (by Safety Committee) readily available on-site

2. Copy (approved by Safety Committee) provided to each EPA participating employee

3. Based on reconnaissance data

a. Hazardous chemicals present

b. Radioactivity

c. Oxygen deficiency

d. Combustibles

f. Other (specify)

4. Defines personnel protective equipment and work practices necessary on-site and basis for establishing

5. Establishes zones

6. Provide emergency procedures (fire, chamical reaction, personnel injury/over-exposure)

a. Alerting signal

b. Escape routes

c. Firefighting materials on-site

d. Emergency contacts; fire, police, medical hospital

e. Telephone numbers and addresses readily available. Contact made with contacts prior to the beginning of actual work.

Figure 3. Example of One Page of NIOSH Evaluation Criteria

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RESULTS

Table 3 presents a comprehensive summary of the Program Element scores of the fifteen EPA sites including the percentage of the possible score for a site. Table 4 contains the total score for each criteria used, expressed as a percent (%) of the total possible score for a criterial.

DISCUSSION

OHSS interprets the high and low scores to be indicators of meeting and not meeting the objective of providing safe and healthful working conditions at sites.

Criteria

The five highest scores were in these criteria: Illness and Accident Reporting, Training, the Buddy System, Respirator Selection, and Shipping According to DOT. The five lowest scores were: Semi-annual Inspections, Zones Properly Maintained, Respirator Program, Heat Stress, and Decontamination of Equipment Leaving the Site.

Sites

OHSS is unable to draw solid conclusions from analyzing the individual site total scores. The difference in scores among sites may reflect how well the OHS programs at that site are meeting the objective of providing safe working conditions, but the difference may reflect differences among the NIOSH evaluators or the differences may be due to other factors. OHSS believes that the individual site total scores are influenced by

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by factors other than OHS program performance and therefore OHSS cannot compare the individual sites based on these scores. Comparing sites in the same EPA Region, evaluated by the same NIOSH evaluator, may be less influenced by other factors and may indicate program performance trends for that Region. OHSS anticipates exploring this application of total site scores after gaining more experience and having more completed site evaluations to analyse.

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PROGRAM ELEMENTS/CRITERIA	PERCENTAGE OF TOTAL POSSIBLE POINTS FOR FIFTEEN SITES
A. Policy & Responsibilities	
1. Policy Statement	92.8
2. Responsibilities Assigned	90.2
3. Responsibilities	82.4
B. Health & Safety Program Requirements	
4. Site Safety Plan	85.2
5. Semi-annual Inspections	58.7
6. Illness & Accident Reports	100
7. Training	98.3
8. Emergency Procedures	85.2
9. Medical Surveillance	93.5
C. Work Practices	
10. Protective Clothing	92.2
11. Work-rest Regimen	96.3
12. Eye Protection	95.0
13. Forbidden Practices	95.0
14. Immediate Wash	88.4
D. Occupational Practices	
15. Reconnaissance Data Used	84.1
16. Levels of Protection	93.3
17. Zones	81.5
18. Radioactivity & Explosivity	87.5
19. Buddy System	98.4
20. Minimize Exposure	82.7
21. Runoff	90.6
22. Respirator Program	81.5
23. Respirator Selection	98.8
24. Heat Stress	76.8
25. Sampling Equipment	95.0
26. Decontaminate Equipment Leaving Site	81.3
27. Shipping According to DOT	100
28. Leaving the Site	90.7
29. Direct Reading Instruments	88.4
30. Decontamination Equipment Available	86.9

TABLE 4. SUMMARY OF PERCENT OF TOTAL POINTS FOR FIFTEEN SUPERFUND SITES

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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Policy & Responsibility	15.5	15.3	19.7	17.0	18.3	18.3	18.3	13.5	18.3	18.3	17.0	17.0	20.0	18.3	18.3
Health & Safety Program Requirement	26.3	30.0	22.5	18.8	26.3	26.3	26.3	24.0	28.7	28.7	22.5	21.2	30.0	28.7	28.7
Work Practices	19.0	18.0	20.0	15.0	16.0	17.0	20.0	16.0	20.0	19.0	19.0	20.0	20.0	20.0	20.0
Operational Process	27.7	27.2	29.0	23.1	27.5	28.1	28.1	19.6	29.5	30.0	23.9	14.3	30.0	28.1	28.1
Average Site Score as Possible % of 100 points	88.5	90.5	91.2	73.9	88.1	89.7	92.7	73.1	96.5	96.0	82.4	72.5	100.0	95.1	95.1

TABLE 3. Summary of Total Score for the Fifteen Superfund Sites

References

1. Weitzman D., et.al.: Industrial Hygiene Program for Hazardous Waste Site Investigations. American Industrial Hygiene Association, J. 42: 653-566 (September 1981).

2. U.S. EPA: Everybody's Problem: Hazardous Waste. Waste Alert Series (SW-826), U.S. Environmental Protection Agency (1980).

3. Occupational Health and Safety Manual, Chapter 9 - Hazardous Substances Responses, U.S. Environmental Protection Agency (May 1984).

4. Medical Monitoring Program Guidelines - FY 1984, U.S. Environmental Protection Agency

5. Administrative Order 1440.2 - Health and Safety Requirements for Employees Engaged in Field Activities, v.s. Environmental Protection Agency (July, 1981).

6. Executive Order 12196, Occupational Safety and Health Program for Federal Employees.

7. Safety and Health Provisions for Federal Employees, Title 29, Code of Federal Regulations, Part 1960.

8. (NIOSH) Publication No. 79-121, .. Management System for Occupational Safety and Health Programs for Academic Research Laboratories, An Administrative Resource Guide, 1979.

9. (NIOSH) Publication No. HETA 83-417-1357, Health Hazard Evaluation Report, U.S. Environmental Protection Agency, Triangle Chemical Site, Bridge City, Texas (August, 1983).

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Hazardous Incident Response Training Safety Training Courses Presented by The ERT

1. Materials Incident Response Operations. This course focuses on response team functions, methods, procedures, and safety in responding to hazardous substances spills or abandoned waste sites.

2. Personnel Protection and Safety. This orientation course provides basic information on the protection and safety of personnel engaged in field operations dealing with hazardous substances.

3. Air Surveillance for Hazardous Materials. This course instructs participants in the practices and procedures for air monitoring and sampling for hazardous materials. It covers the design of air surveillance programs; the types, availability, uses, and limitations of direct-reading air monitoring instruments and air sampling equipment; the use of air monitoring data for evaluating the safety of response personnel and the public; and air dispersion and meteorology. The course will include operating procedures for specific air monitoring instruments and sampling equipment, as well as strategies for surveillance of both abandoned hazardous waste sites and accidental releases of hazardous chemicals.

4. Response Safety Decision-Making Workshop. This workshop is for persons developing, implementing, or managing safety programs for chemical emergencies or cleanup at abandoned hazardous waste sites. The workshop complements other EPA basic safety course and provides participants with more detailed guidance for making effective safety decisions.

5. Hazard Evaluation and Environmental Assessment. This course covers techniques for assessing the potential environmental impact of released hazardous materials. The course emphasizes methods and procedures for estimating the dispersion of contaminants in air, surface water, and ground water; pathways for contact with surrounding populations, and guidelines for the protection of public health.

6. Incident Mitigation and Treatment Methods. This course deals with concepts and techniques for containing, controlling, and treating releases of hazardous substances.

7. Sampling for Hazardous Materials. This course provides practical knowledge required for an effective sampling program for hazardous materials.

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II. Technical Documents for CERCLA Responses

1. Standard Operating Safety Guides, November 1984.

These guides, prepared by the ERT, provide information on health and safety to complement professional judgment and experience, and supplement existing Regional Office safety procedures.

In addition to being widely used by EPA employees, these Guides are either directly or indirectly used by USCG, Army Corps of Engineers, NIOSH, OSHA, CDC, as well as other Federal, State, county, and city personnel. Many consulting businesses and industries use these guides in developing and implementing hazardous waste site programs to protect their employees.

The following are some highlights of the Standard Operating Safety Guides:

Part 3 - Site Entry -- General Measures and Requirements

This section addresses such worker's heal n and safety areas as: Medical Programs; Education and Training; Stress (heat/cold); and Indicators of Toxic Exposure Effects.

Part 4 - Site Entry -- Survey and Reconnaissance

Part 4 addresses the teams initial entry and summarizes the type of field instruments to be used.

Part 5 - Site Entry -- Levels of Protection

Personnel equipment to protect the body against contact with known or anticipated chemical hazards has been divided into four categories:

1. Level A protection should be worn when the highest level of respiratory, skin, eye, and mucous membrane protection is needed.

2. Level B protection should be selected when the highest level of respiratory protection is needed, but a lesser level of skin and eye protection. Level B protection is the minimum level recommended on initial site entries until the hazards have been further identified and defined.

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3. Level C protection should be selected when the type of airborne substance is known, concentration measured, criteria for using air-purifying respirators met, and skin and eye exposure is unlikely.

4. Level D is primarily a work uniform. It should not be worn on any site where respiratory or skin hazards exist.

Part 6 - Site Control -- Work Zones

One method of preventing or reducing the migration of contaminants is to delineate zones on the site in which prescribed operations occur. Movement of personnel and equipment between zones and onto the site itself would be limited by access control points. By these means, three contiguous zones are recommended: Zone 1: Exclusion Zone; Zone 2: Contamination Reduction Zone; and Zone 3: Support Zone.

Part 7 - Site Control — Decontamination

This section addresses general guidance in the methods and techniques for decontamination.

Part 8 - Air Surveillance

Part 8 addresses not only the theory of air sampling and equipment requirements, it also includes the US EPA Environmental Response Team's Generic Air Surveillance Program.

Part 9 - Site Safety Plan

Three general categories of hazardous waste activities exist:

1. Emergencies

2. Characterization

3. Remedial Actions.

The specific variations are generally due to the reason for responding, information available, and/or the severity of the hazardous waste incident. This section not only addresses the theory of writing site safety plans, but it also furnishes two Generic Site Safety Plans for examples. In addition, Part 9 also furnishes Generic examples of: Emergency Operation Codes for Real-time Monitors, and Response Safety Check-Off Sheet.

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Appendix III - Dermal Toxicity

Since the potential for an unexpected accidental release to occur is almost always present at both Emergency Responses and Remedial Activities, Appendix III is placed in the Guides to furnish emergency information about 350 of the approximate 1200 chemicals identified in the Oil and Hazardous Materials Technical Assistance System (OHMTADS).

2. Field Standard Operating Procedures (FSOP)

The objectives of the FSOP's are to minimize the risk of exposure to hazardsous substances. The procedures are derived by the ERT from the U.S. Environmental Protection Agency, Office of Emergency and Remedial Response's (OERR), "Standard Operating Safety Guides." These versions of the Guides are in a format that is more appropriate for field use.

Currently, FSOP #7 - Decontamination of Response Personnel, is being distributed to field personnel. Tentative plans project the following FSOP's to be distributed by Fall of 1985. FSOP #4 Site Entry; FSOP #8 - Air Monitoring; FSOP #9 - Site Safety Plans; FSOP #6 - Work Zones; and FSOP #10 - Drum Opening.

3. Fact Sheets

The Environemental Response Team has put together several one page Fact Sheet describing both areas of occupational health and safety as well as new field and analytical techniques. The following is a list of fact sheet topics, which have been distributed nationally.

1. Levels of Protection; April 1982.
2. Respirator Fitting Methods; April 1982.
3. Long-term, Self-contained, Chemical Protection Ensemble; April 1982.
4. EPA's Mobile Incineration System for Clean Up of Hazardous Substance Spills and Waste Sites; April 1982.
5. Portable Bioassay Diluter System; April 1982.
6. Bioassay Capabilities; January 1983.

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III. Responsibilities for Field Implementation

1. On-Scene Coordinators/Remedial Project Managers (OSC's/RPM's).

The EPA, Occupational Health and Safety Manual, dated December 12, 1984, contains the Agency's Occupational Health and Safety Policies, Programs, Standards, Goals, and Objectives. The document gives the OSC's/RPM's the responsibility for the following:

a. Selecting the level of personnel protection needed for use at a response.

b. Selecting safe work practices and other controls at responses.

c. Preparing site specific safety plans.

d. Submitting site specific safety plans for review.

e. Making copies of the approved safety plan available to all affected programs and providing copies to those employees participating in a specific response.

f. Assuring that EPA employees are trained and informed of the hazards associated with the response before they are allowed to work on-site.

g. Assuring that EPA employees are included in the EPA Occupational Medical Monitoring Program and have undergone a baseline medical examination.

h. Designating the Site Safety Officer.

i. Supervising the safety performance of the response personnel.

j. Arranging for immediate medical attention for any incident that results in injury or exposure of personnel to hazardous substances.

k. Assist in investigating accidents.

l. Investigate and report in writing to the Occupational Health and Safety Designee all accidents.

m. Correcting work errors and conditions that may result in injury or exposure.

n. Assuring safe and healthful working conditions for all

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o. Informing non-EPA employees of the on-site hazards and appropriate measures to assure safe and healthful working conditions for these employees.

2. Environmental Response Team

The focal point of OERR's, HRSD, clean up efforts is the Environmental Response Team (ERT), a group of 13 hazardous waste experts who provide multidisciplinary assistance to EPA's Regional Offices as well as other Federal/State/Local Governments. ERT is the primary developer and implementor of the "Standard Operating Safety Guides," "Field Standard Operating Procedures," Fact Sheets, Conference presentation, and training courses previously mentioned. In addition, at the request of the OSC/RPM, ERT develops and implements site-safety plans incorporating the unique requirements of each site. Using the "Standard Operating Safety Guides" issued by the Office of Emergency and Remedial Response, ERT determines the zones of contamination, the type of personal protective equipment required for each operation, the method and frequency of the site air monitoring, and the method and location of personnel and equipment decontamination.

In addition to direct field implementation, ERT assists in the implementation of state-of-the-art occupational health and safety techniques by having a close working relationship with the following groups: OSC's/RPM's; EPA Headquarters and Regional Occupational Health and Safety Staff; NIOSH, OSHA, Memorandum of Understanding Work Groups; OSHA Health Response Team; NIOSH, Cinc. field and technical personnel; CDC Headquarters and Regional Personnel; USCG Strike Teams and R & D Personnel; EPA's Release Control Branch; Land Pollution Control Division; Hazardous Waste Engineering Research Branch; and State Public Health and Environmental Agencies; as well as various industrial and professional groups.

3. EPA's Occupational Health and Safety Staff

The OHS Staff is responsible for developing Agency policy programs, guidelines, and procedures for the protection of EPA employees, for technically supporting EPA's decentralized health and Safety programs at its 35 locations and its field operations, and for reviewing and evaluating the effectiveness of the Agency's health and safety efforts. The basic programs to which the OHS Staff provides leadership are the Agency's industrial hydiene programs, safety programs, OHS training and educational programs, occupational medical monitoring, and OHS data and information management. The Director of the Occupation

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Health and Safety Staff is also the designated Agency representative for the Memorandum of Understanding described in (4) below.

4. MOU

The Memorandum of Understanding is between EPA, USCG, OSHA, and NIOSH. It sets up a work group to deal with health and safety of employees involved in hazardous waste site activities. The group has prepared DHHS (NIOSH) Publication No. 83-100, Hazardous

Waste Sites and Hazardous Substance Emergencies, and is preparing an "Occupational Safety and Health Guidance Manual for Superfund Activities."

5. OSHA HRT

While the OSHA Health Response Team has other OSHA functional responsibilities, they have been involved at hazardous waste activities both with ERT and EPA Regional personnel. The HRT's role is one of technical support to the EPA OSC/RPM in which they evaluate the site specific safety protocols.

6. NIOSH Cincinnati

In addition to their other NIOSH program functions, the NIOSH Cincinnati Superfund group have two specific hazardous waste site roles. First, they are involved with auditing current EPA cleanup activities and evaluating the site specific health and safety program. The reports are furnished directly to the EPA Regional Office as well as EPA's Occupational Health and Safety Staff, Washington, D.C. Second, during a major hazardous waste site event, this group is directed by CDC, Atlanta, to conduct an on-site evaluation of the Occupational Health and Safety program. Their involvement could involve the monitoring of site personnel as it did at the Rhinehart Tire Fire, Winchester, Virginia.

7. CDC Atlanta

Through its field personnel located in each one of the EPA Regional Superfund organizations, Centers for Disease Control, Atlanta is able to assist the health and safety field implementation by reviewing specific site activities and commenting to the EPA Regional Office.

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8. USCG, R & D, Washington, D.C.

   Through the furnishing of technical directives to the USCG's Marine Safety Officers and Strike Teams, as well as EPA's Occupational Health and Safety Staff, R&D, and ERT, this office is able to distribute state-of-the-art safety technology for field implementation in such areas as worker's protective clothing and respiratory protection.

9. U.S. EPA Regional Offices

   In addition to the OSC's/RPM's activities, Regional Offices also assist the field implementation of Health and Safety technology through Response Safety Committees, Occupational Health and Safety Designees, Occupational Medical Monitoring, and specific employee requirements.

10. EPA, Releases Control Branch, Land Pollution Control Division, Hazardous Waste Engineering Research Branch.

    This R&D group, by furnishing technical directives to EPA's ERT and Occupational Health and Safety staff, as well as USCG R&D, is able to distribute state-of-the-art safety technology for field implementation in such areas as worker's protective clothing, decontamination, waste compatibility testing, and field analytical techniques.

11. Others

    Other groups, which have employees working at hazardous waste type activities (such as: State, County, and Local governments, as well as fire companies, consultants, and private industry), also have a direct role in the field implementation of health and safety protocols. Many of these groups, either directly or indirectly, use the OERR, HRSD, ERT, "Standard Operating Safety Guides," Nov. 1984, as well as attend the ERT training courses previously mentioned.

IV. Interagency Cooperation in Worker Safety Under CERCLA

1. Centers for Disease Control

   Within the Department of Health and Human Service, the Centers for Disease Control, Atlanta, is responsible for assistng EPA in assessing health hazardous for both workers and the public. CDC provides a field person to each of the EPA regional offices Superfund Programs to insure immediate response to health and safety concerns.

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2. U.S. Coast Guard

During field responses, the U.S.C.G. Strike Teams perform many site activities. One such site activity is the designation of a Site Safety Officer. Recently, the USCG changed their Levels of Protection to conform with EPA standard for production. This cooperation action was taken by the USCG in order to reduce confusion on the part of site workers.

3. Army Corps of Engineers

The Army Corps of Engineers' performs engineering and design activities at Superfund sites. The Corps accepted the safety standards adopted by EPA of A, B, C, and D protection. The Environmental Response Team assists them approximately 5-6 times per year in presenting in modified version of ERT Hazardous Materials Incident Response Operations. The Corps' version has been modified to address their specific site function and is known as the Superfund Overview Course.

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